Electronic Supplementary Material (ESI) for Journal of Materials Chemistry A.

Electronic Supplementary Information for

Metal-Organic Frameworks deposition on dealloyed substrates

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Table of contents:

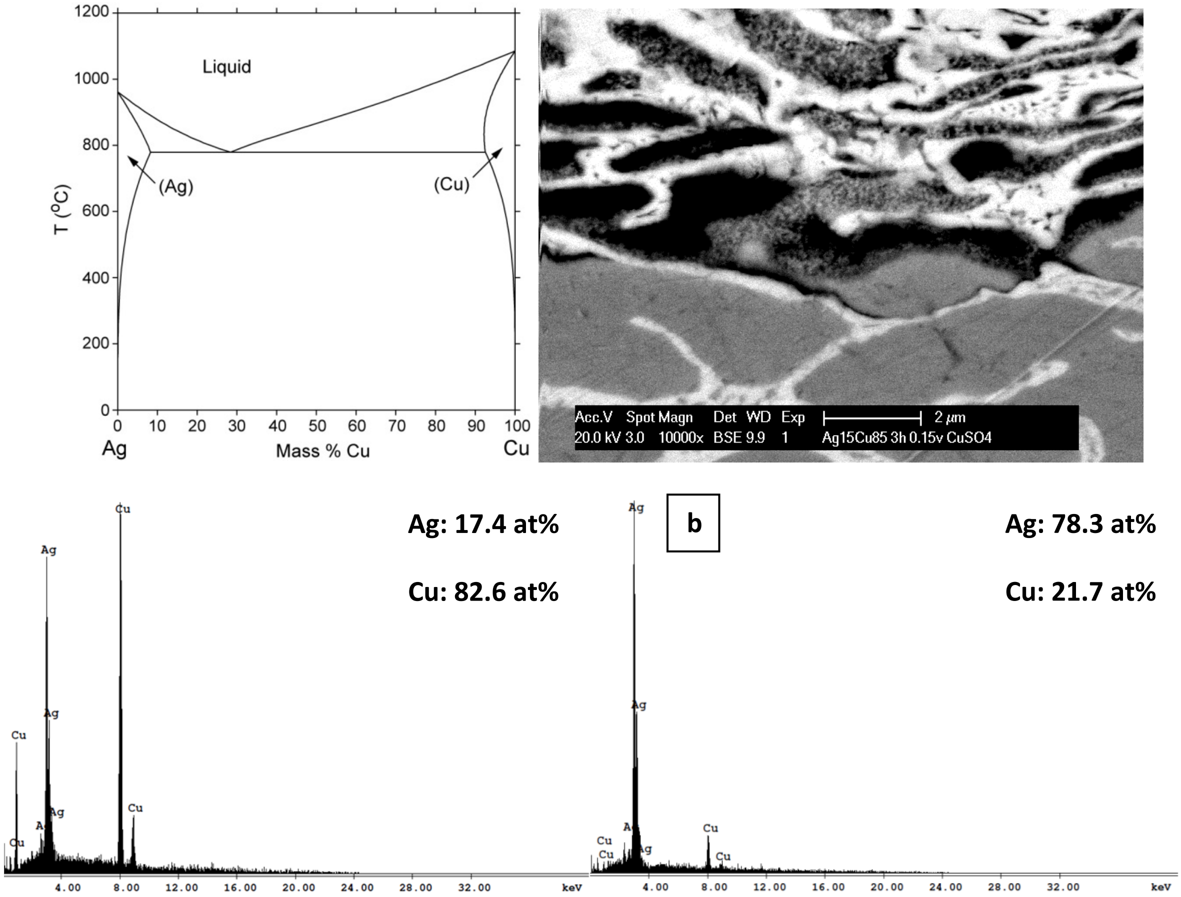

Figure S1: Phase diagram of the Ag-Cu system (left). SEM image (cross section) of the interphase between dealloyed and non-dealloyed areas in a *$Ag_{15}Cu_{85}$ alloy sample (3 h, 0.15 V cupric solution) (right). In dark grey the copper-rich phases (α and α'), and in white the silver-rich β phase. Below, the EDX spectra of a pristine (a) and dealloyed (b) sample (taken from top view SEM pictures)*

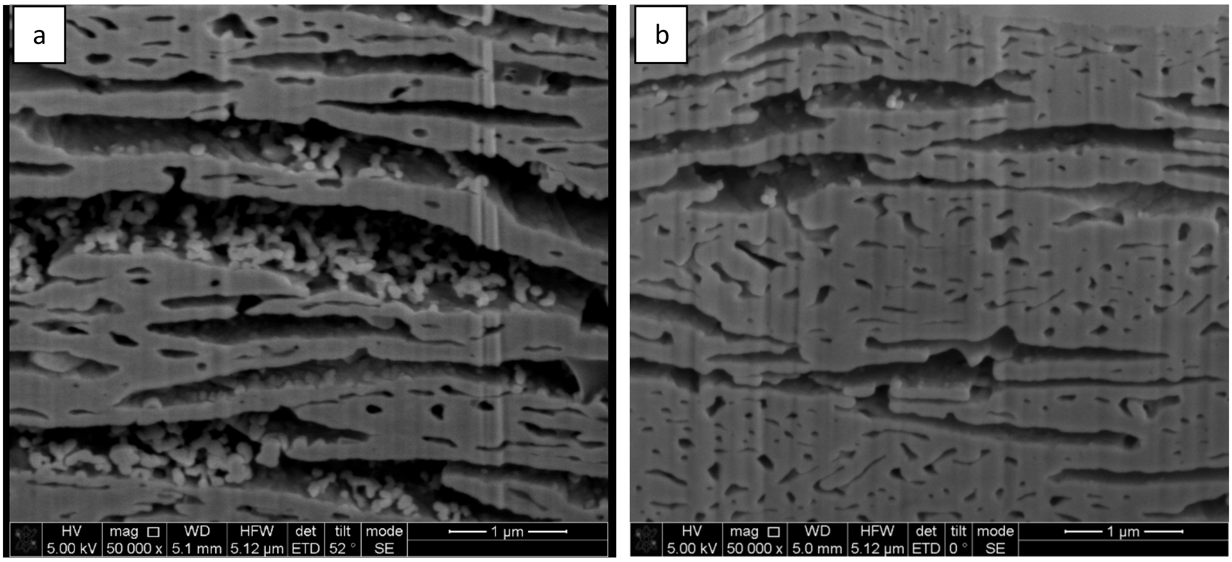

Figure S2: SEM-FIB images of a dealloyed $Ag_{30}Cu_{70}$ alloy (a) and a dealloyed $Ag_{45}Cu_{55}$ alloy (b) (3 h, 0.15 V cupric solution).

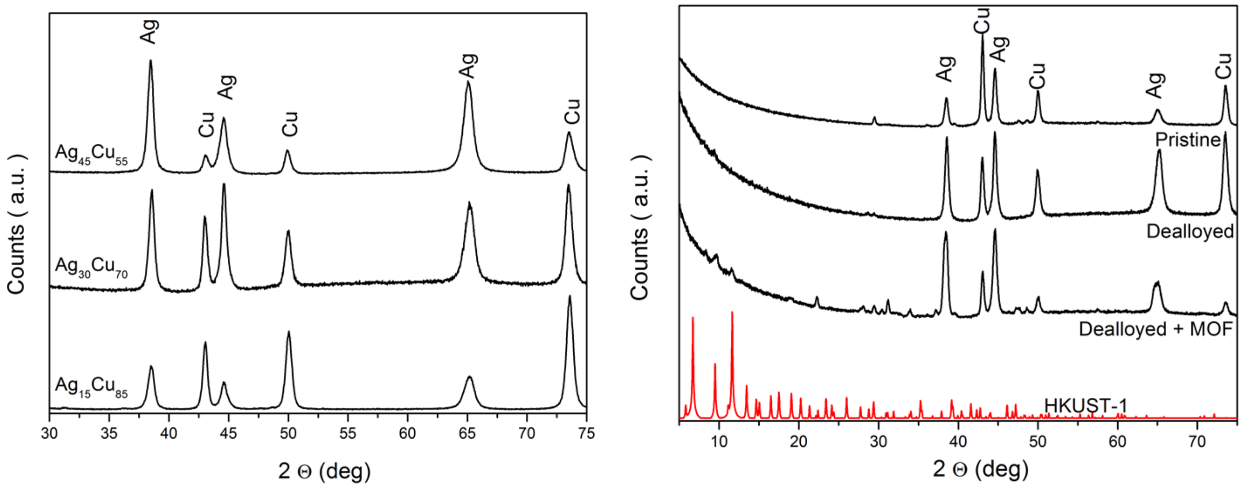

Figure S3: XRD of samples with different elemental composition ($Ag_{15}Cu_{85}$, $Ag_{30}Cu_{70}$, $Ag_{45}Cu_{55}$) (a), XRd patterns of an Ag15Cu85 sample, pristine after cast, dealloyed and deposited with MOF (b).

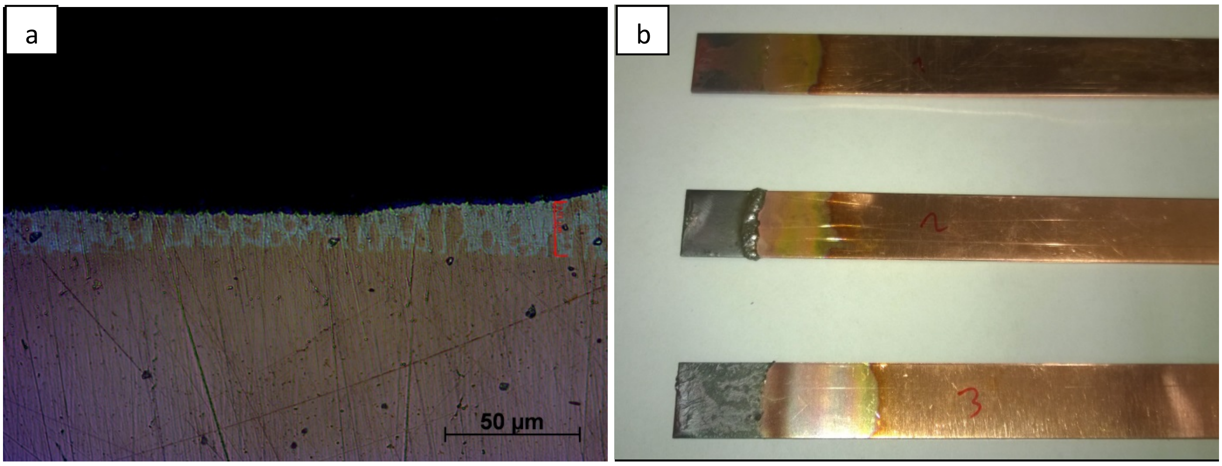

Figure S4: optical cross-section image of a $Ag_{15}Cu_{85}$ coating on a copper plates obtained by dip coating (a). Overview of different samples (b).

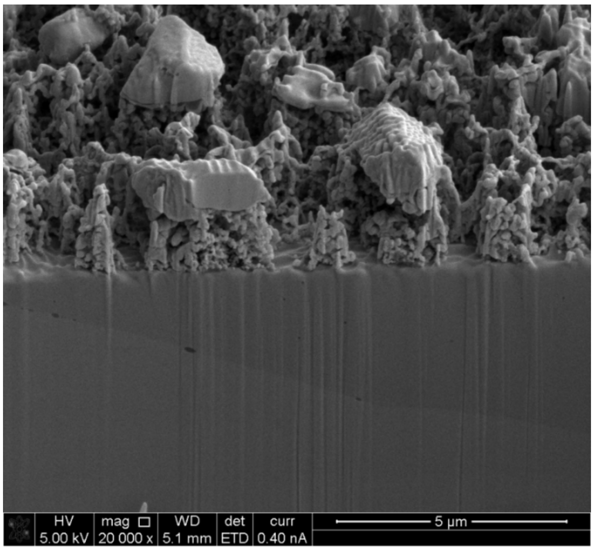

Figure S5: SEM-FIB image of electrochemically dealloyed $Ag_{15}Cu_{85}$ dip-coated sample.

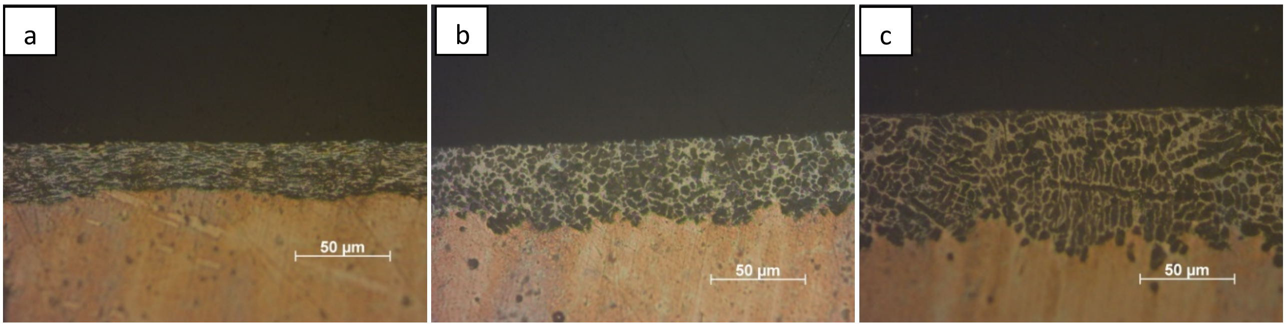

Figure S6: comparison between dealloyed layers obtained with samples with different grain orientation, dealloyed under the same conditions. (a) optical cross-section of a dealloyed $Ag_{15}Cu_{85}$ alloy sample with grains parallel to the surface, (b) uniaxial grains, and (c) perpendicularly oriented ones (3 h, 0.25 vs Ag/AgCl corresponding to 0.15V vs copper, in cupric solution).

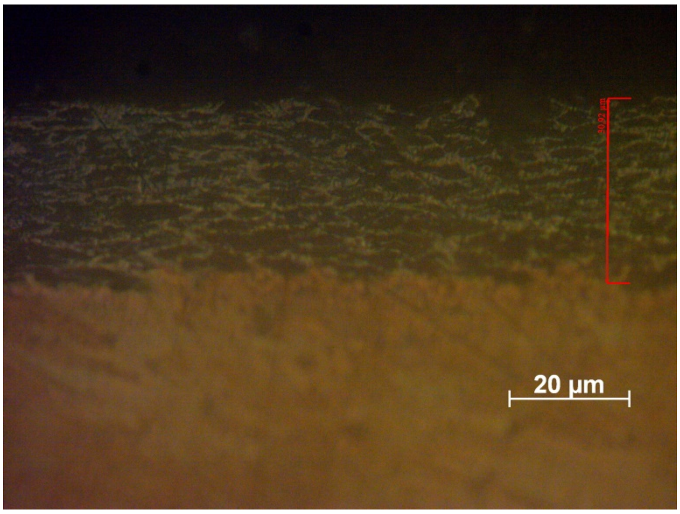

Figure S7: Detail of the $Ag_{15}Cu_{85}$ dealloyed sample with crystals oriented parallel to the surface shown in the previous figure.

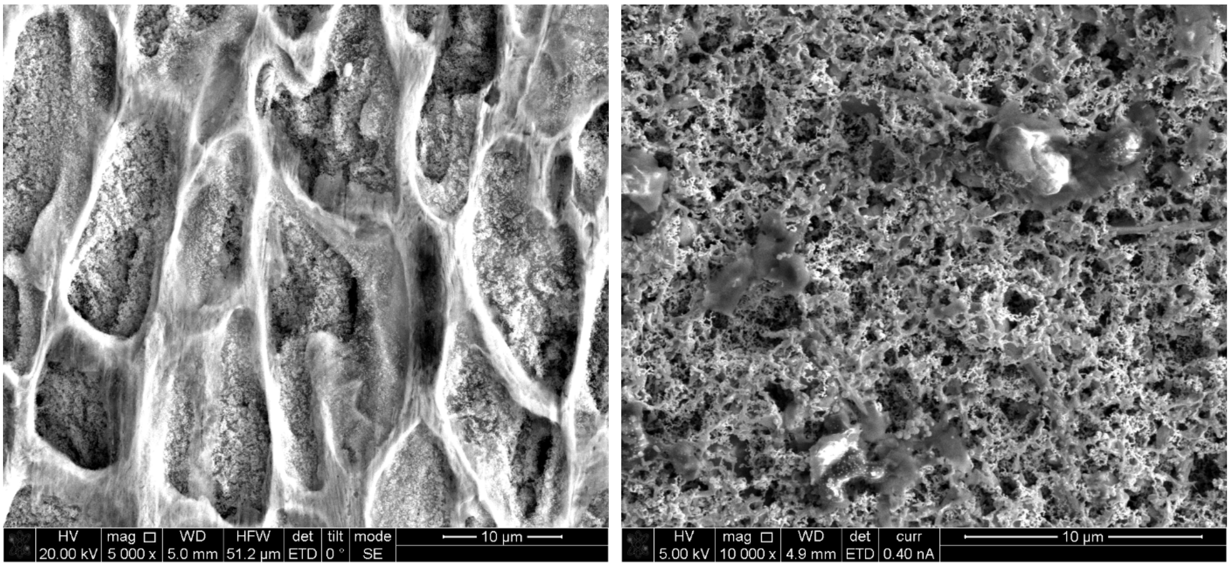

Figure S8: Top view of (a) a dealloyed $Ag_{15}Cu_{85}$ sample with grains oriented parallel to the surface, (b) a dealloyed dip-coated sample, with vertically oriented grains.

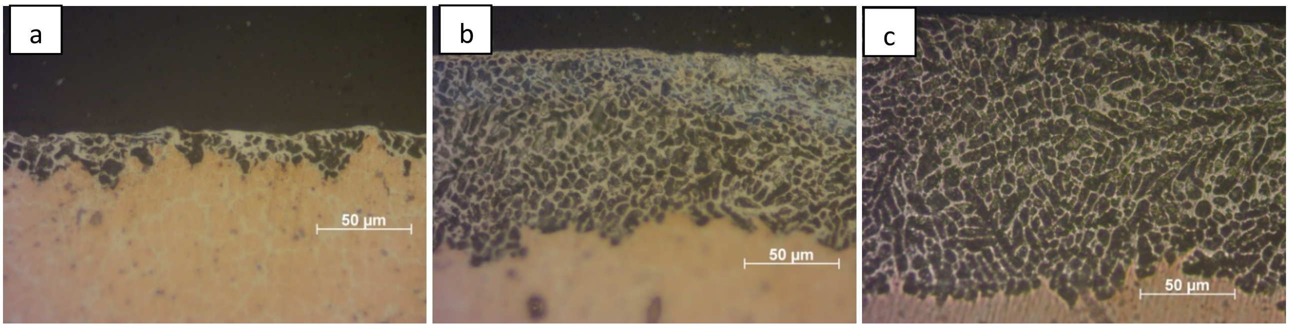

Figure S9: optical cross-section images of a $Ag_{15}Cu_{85}$ chemically dealloyed for 3 h, 24 h, and 72 h.

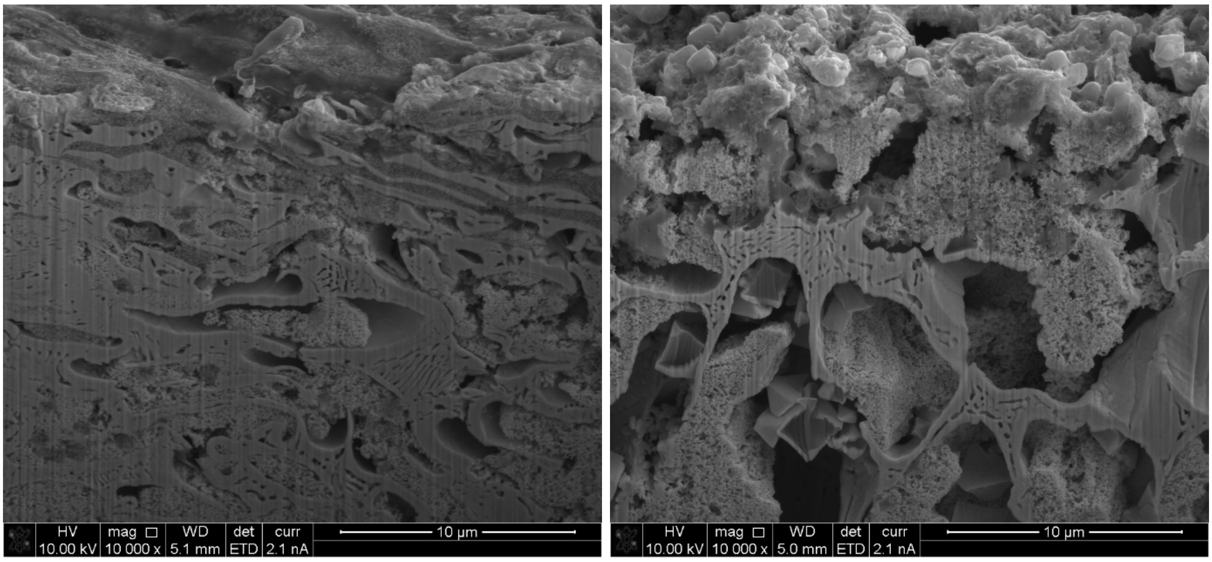

Figure S10: SEM-FIB images of a 24 h chemically dealloyed $Ag_{15}Cu_{85}$ sample before (a) and after (b) MOF deposition.

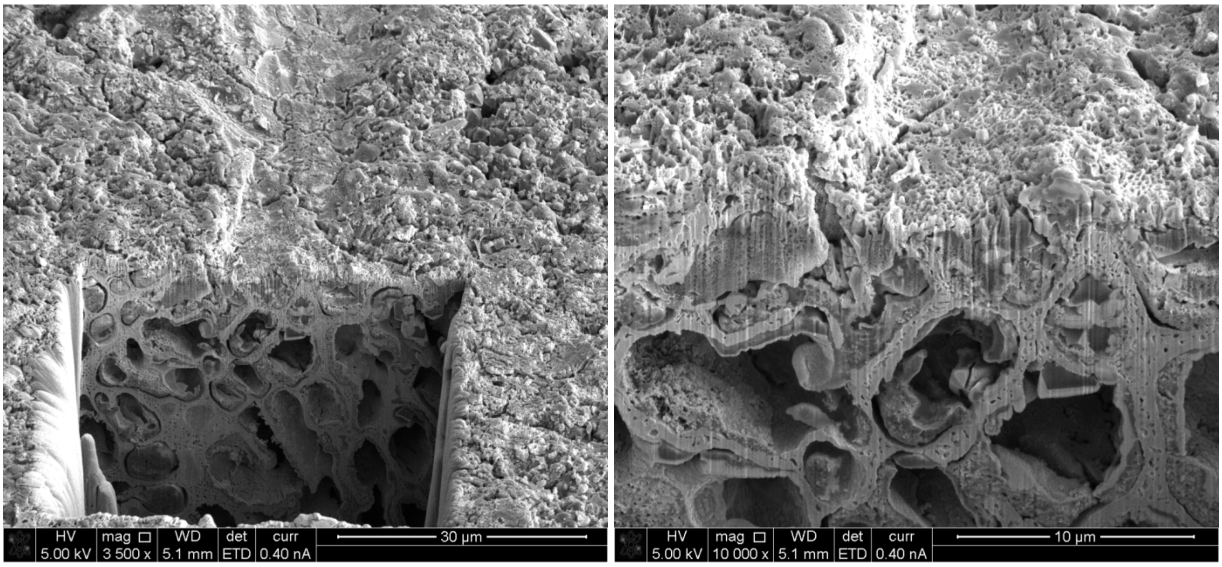

Figure S11: SEM-FIB images of a $Ag_{15}Cu_{85}$ sample dealloyed and deposited with MOF. The sample was scratched in the centre with a diamond pen.

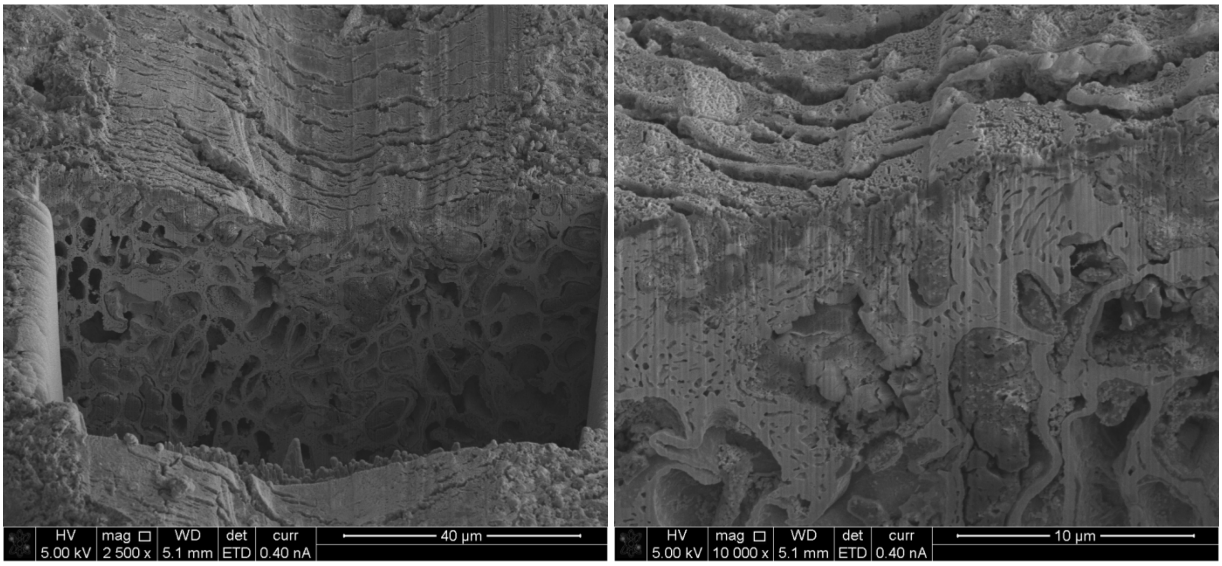

Figure S12: SEM-FIB images of a $Ag_{15}Cu_{85}$ sample dealloyed and deposited with MOF. The sample was scratched in the centre with a diamond pen (more deeply than the precedent sample).