Supporting Information

Ionic liquid-assisted synthesis of mesoporous silk fibroin/silica hybrids for biomedical applications

Rui F. P. Pereira,[a,b,*] Kerstin Zehbe,[c] Christina Günter,[c] Tiago dos Santos,[d,e] Sílvia C. Nunes,[f] Filipe A. Almeida Paz,[g] Maria M. Silva,[a] Pedro L. Granja,[d,e,f,g] Andreas Taubert [c,*] and Verónica de Zea Bermudez[b,j,*]

[a]Chemistry Center, University of Minho, 4710-057 Braga, Portugal
[b]CQ-VR, University of Trás-os-Montes e Alto Douro, 5000-801 Vila Real, Portugal
[c]Institute of Chemistry, University of Potsdam, Karl-Liebknecht-Straße 24-25, D-14476 Potsdam, Germany
[d]i3S - Instituto de Investigação e Inovação em Saúde and [e]INEB – Instituto de Engenharia Biomédica, 4200-135 Universidade do Porto, Portugal
[f]Chemistry Department and CICS – Health Sciences Research Centre, University of Beira Interior, 6201-001 Covilhã, Portugal
[g]Chemistry Department, University of Aveiro, CICECO-Aveiro Institute of Materials, 3810-193 Aveiro, Portugal
[h]Instituto de Ciências Biomédicas Abel Salazar, Universidade do Porto, 4050-313 Porto, Portugal
[i]Faculdade de Engenharia da Universidade do Porto, 4200-465 Porto, Portugal
[j]Chemistry Department, University of Trás-os-Montes e Alto Douro, 5000-801 Vila Real, Portugal

Table S1. Relevant data of the synthesis of the SF/silica hybrids

Sample	$m_{SF:[Bmim][Cl]\ mix}$ (g)	m_{TMOS} (mg)	[HCl] (M)	V_{HCl} (μL)	[NaOH] (M)	V_{NaOH} (μL)	Aging time (days)
H1	2.0295	507.38	1.0	240	-	-	2
H2	1.6524	413.10	1.0	196	0.01	196	
H3	1.5978	399.45	0.01	189	-	-	
H4	1.7134	428.35	0.01	203	0.01	203	
H3’	1.7542	438.55	0.01	208	-	-	7
H4’	1.7648	466.20	0.01	221	0.01	221	

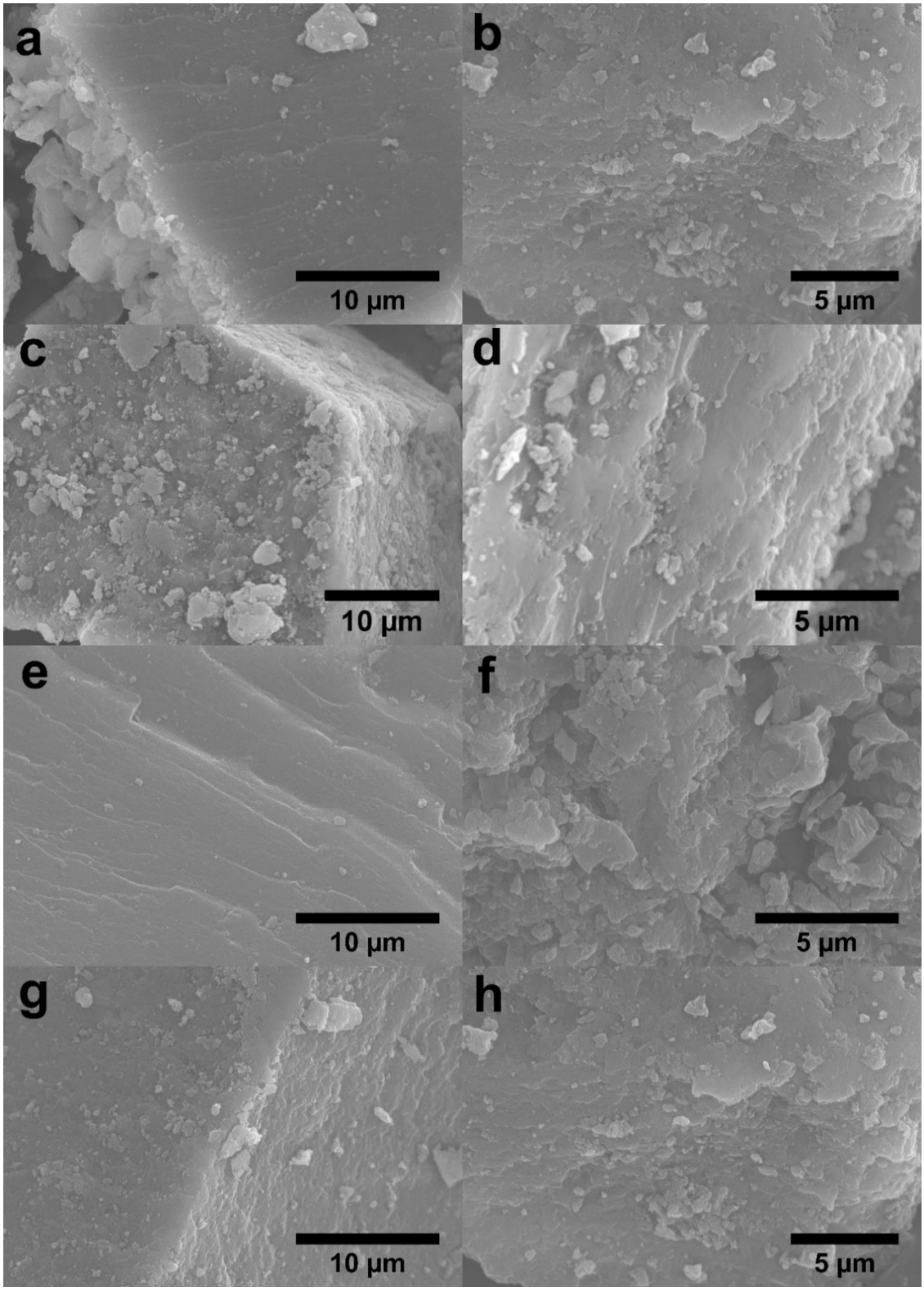

Figure S1. SEM images of the H2 (a, b), H3 (c, d), H3' (e, f), and H4 (g, h) hybrids

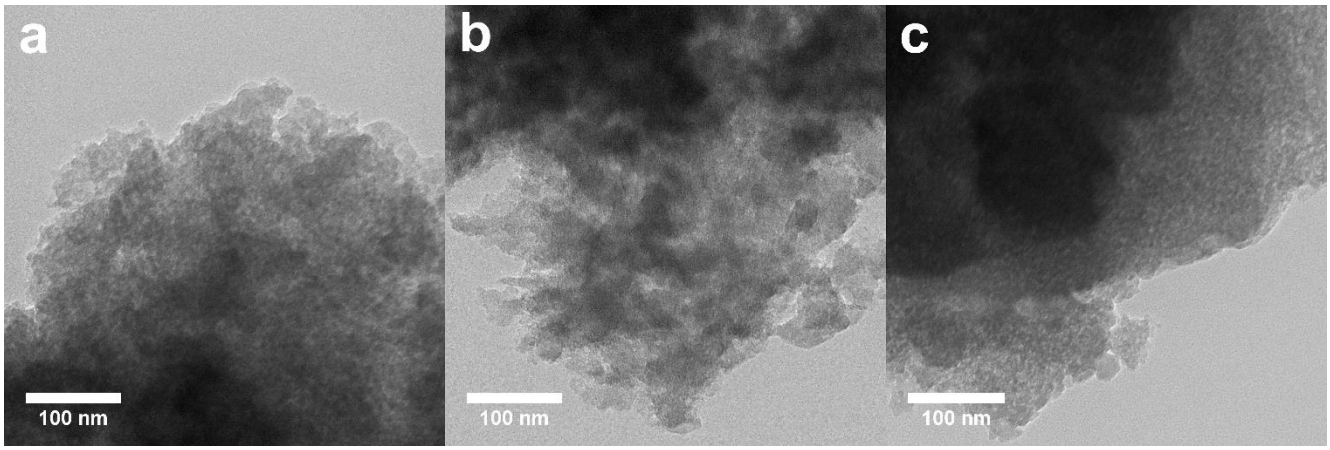

Figure S2. TEM image of the H3 (a), H3' (b) and H4 (c) SF/silica hybrids.

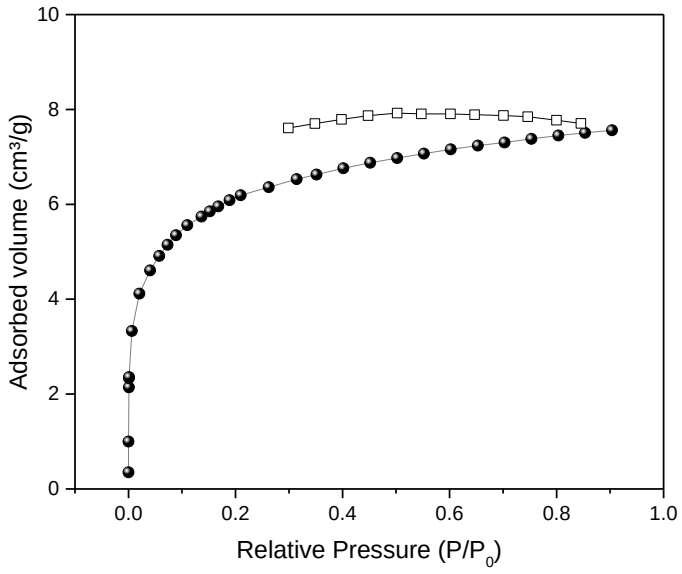

Figure S3. Nitrogen adsorption (open squares)-desorption (closed spheres) isotherms of the H2 SF/silica hybrid.

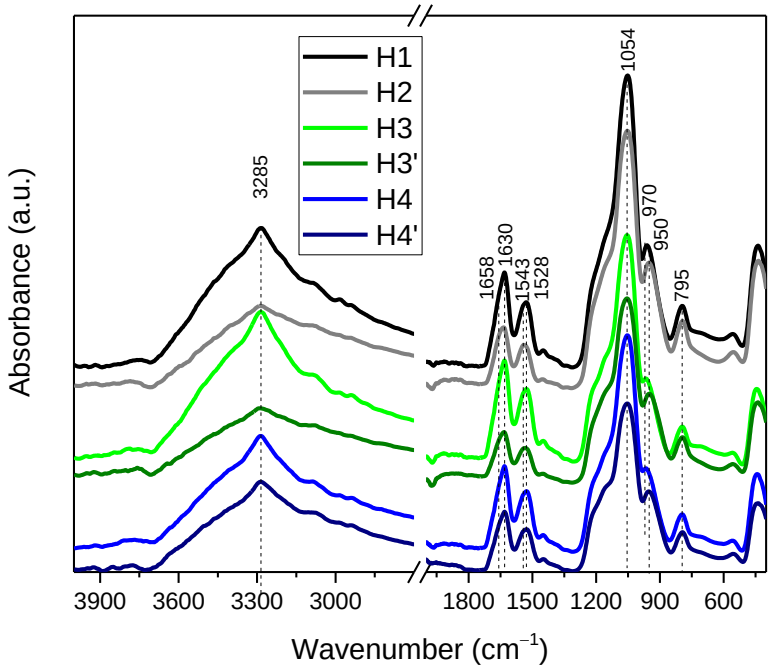

Figure S4. ATR/FT-IR spectra of the prepared silk-based hybrids.

Table S2. ^{13}C CP/MAS NMR chemical shifts (in ppm) of the amino acid residues Ala, Gly and Ser of the SF/silica hybrids. Peak assignment[1-4] is indicated in parenthesis, where I is silk I and β is β-sheet.

Sample	Ala			Gly		Ser
	C_α	C_β	C=O	C_α	C=O	C_α
H1	49.1 (β)	19.8 (β); 16.7 (I)	172.4 (β)	42.8 (β)	169.6 (β)	58.0 (I); 54.5 (β)
H2	49.2 (β)	20.0 (β); 16.8 (I)	172.4 (β)	42.8 (β)	169.6 (β)	- ; 54.5 (β)
H3	49.4 (β)	20.4 (β); 17.2 (I)	172.4 (β)	42.8 (β)	169.6 (β)	- ; 54.5 (β)
H3'	49.2 (β)	20.0 (β); 16.8 (I)	172.4 (β)	42.8 (β)	169.6 (β)	- ; 54.8 (β)
H4	49.1 (β)	20.1 (β); 16.2 (I)	172.4 (β)	42.7 (β)	169.8 (β)	57.6 (I); 54.2 (β)
H4'	49.2 (β)	20.0 (β); 16.8 (I)	172.5 (β)	42.8 (β)	170.1 (β)	- ; 55.1 (β)

References

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