

**Supporting Information for**

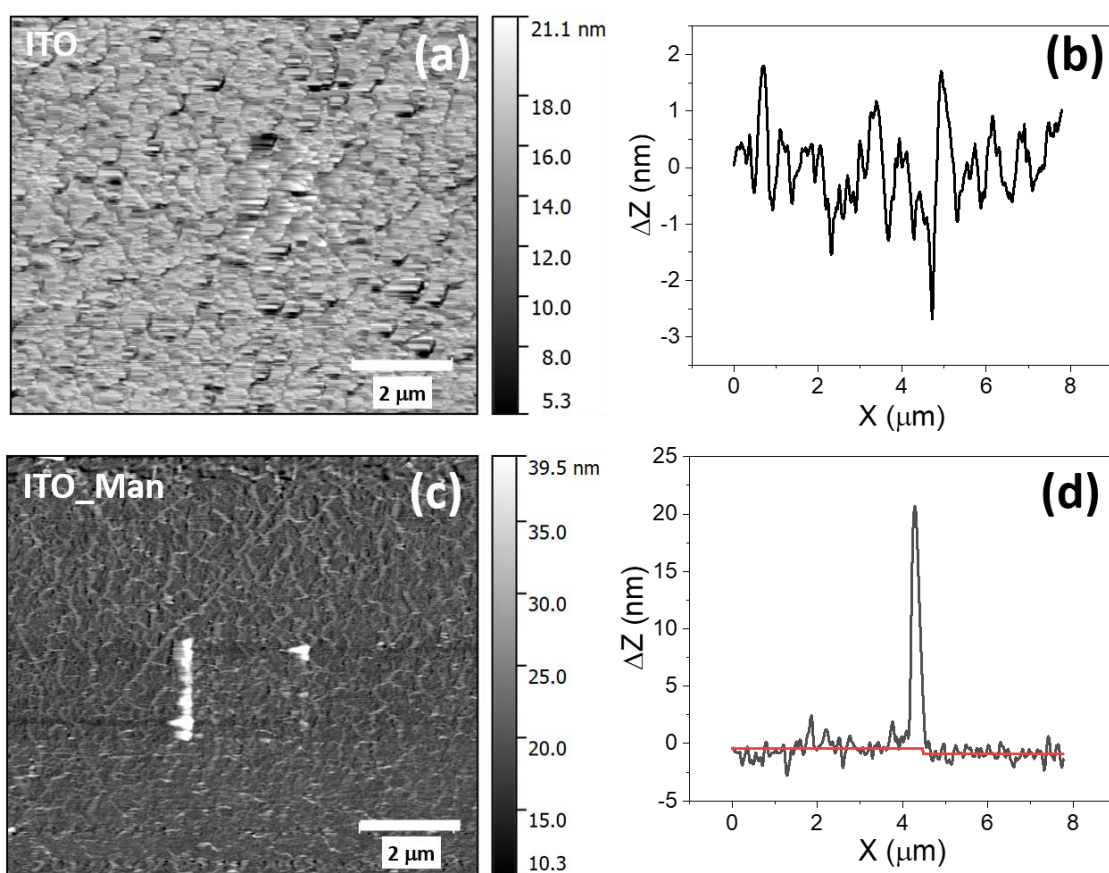
**Controlling the carbon-bio interface via glycan functional adlayers**

**for applications in microbial fuel cell bioanodes**

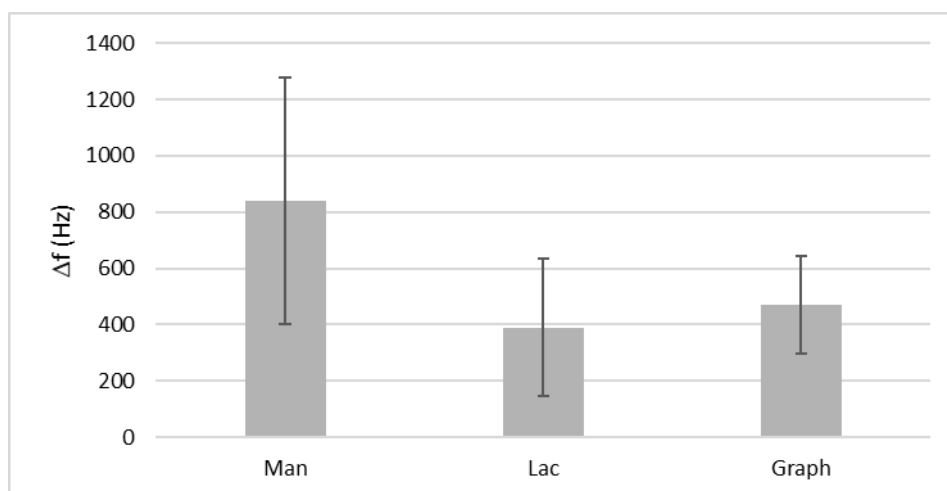
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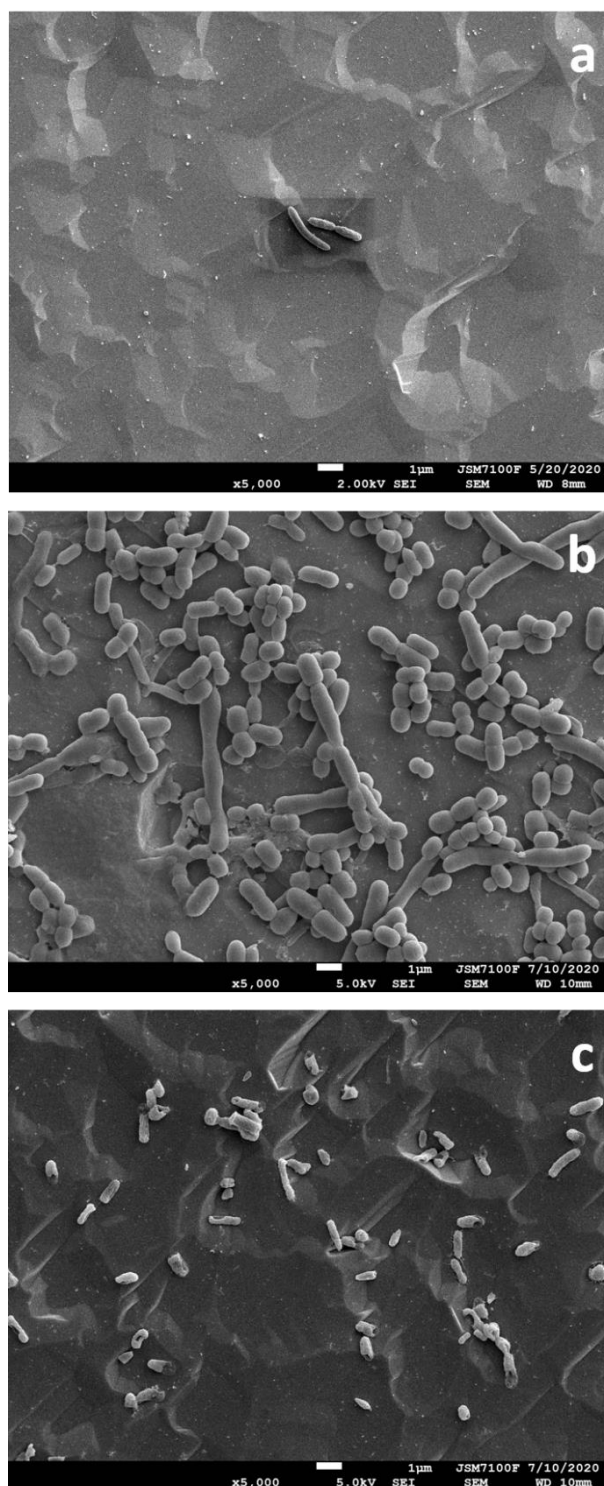
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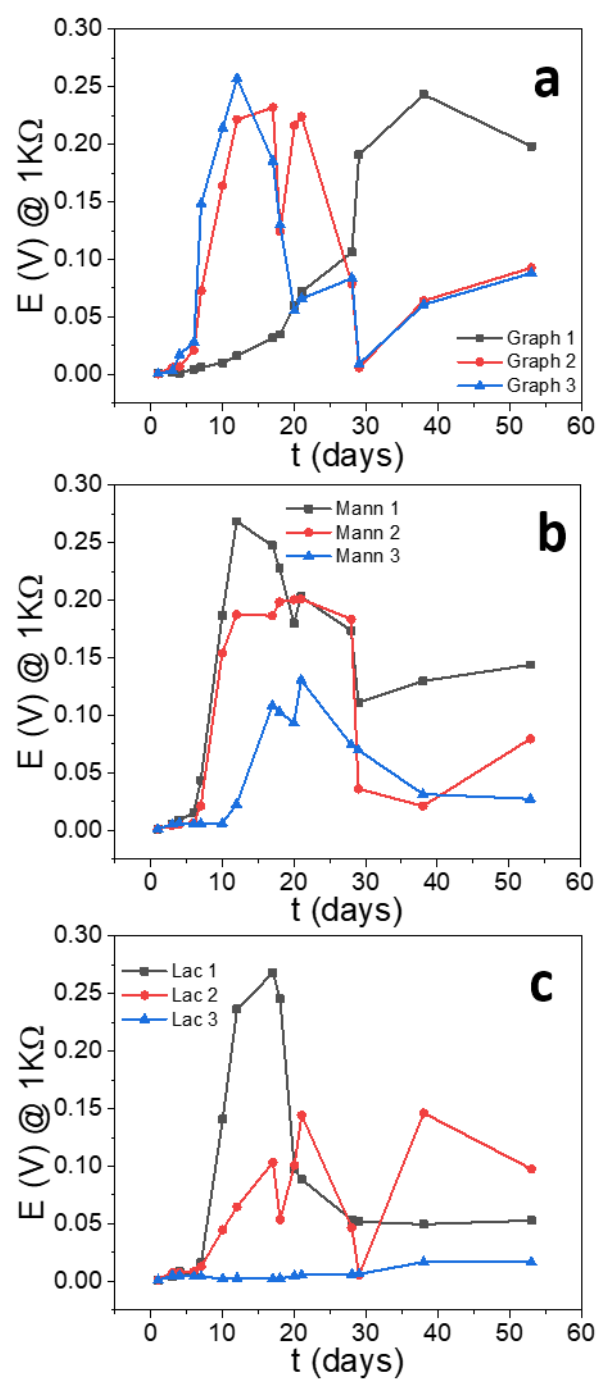
**Figure S1.**  $\Delta Z$  difference image obtained via AFM of a bare ITO (a) and of ITO\_Man (c) surfaces before and after removal of a  $2 \times 2 \mu\text{m}^2$  region via raster scanning in contact mode. (a) shows no discernible depressed region, whereas (c) shows a clear region corresponding to removal of the organic adlayer. Average height profiles extracted from the corresponding  $\Delta Z$  images are shown from bare ITO (b) and ITO\_Man (d).



**Figure S2.** Resonant frequency change measured at QCM carbon-coated crystals bare and functionalised with PhOLac and PhOMan adlayers after immersion in a dilute wastewater inoculum after 5 days, as described in the experimental section; error bars indicate standard errors on the mean calculate from triplicate experiments. Large variances observed are attributed to a combination of temperature effects, differences in the sedimentation of the wastewater inoculum in consecutive experiments and surface condition of pre-coated crystals.



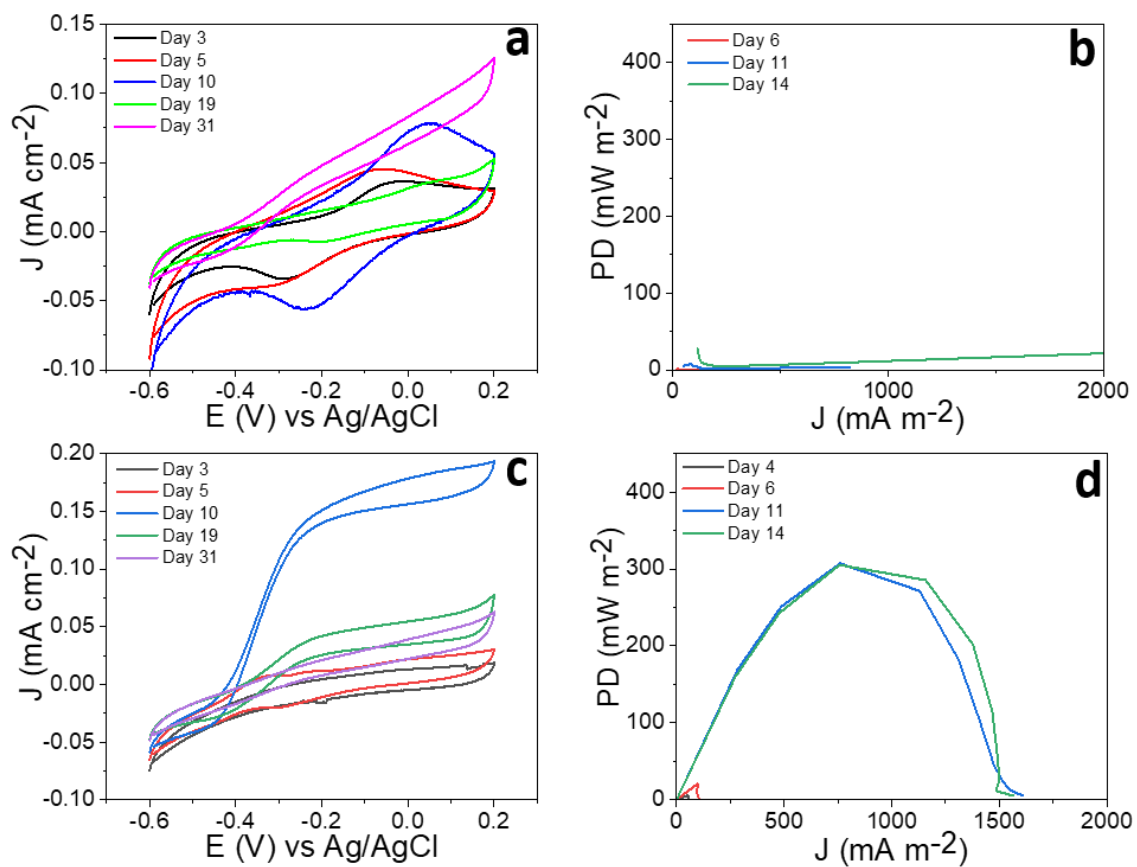
**Figure S3.** Additional SEM images of carbon-coated crystals functionalised with (a) PhOLac and (b) PhOMan adlayers after both surfaces had been immersed in a dilute wastewater inoculum after 5 days, as described in the experimental section. The image obtained using a bare carbon control at 5 days under identical conditions is shown in (c).



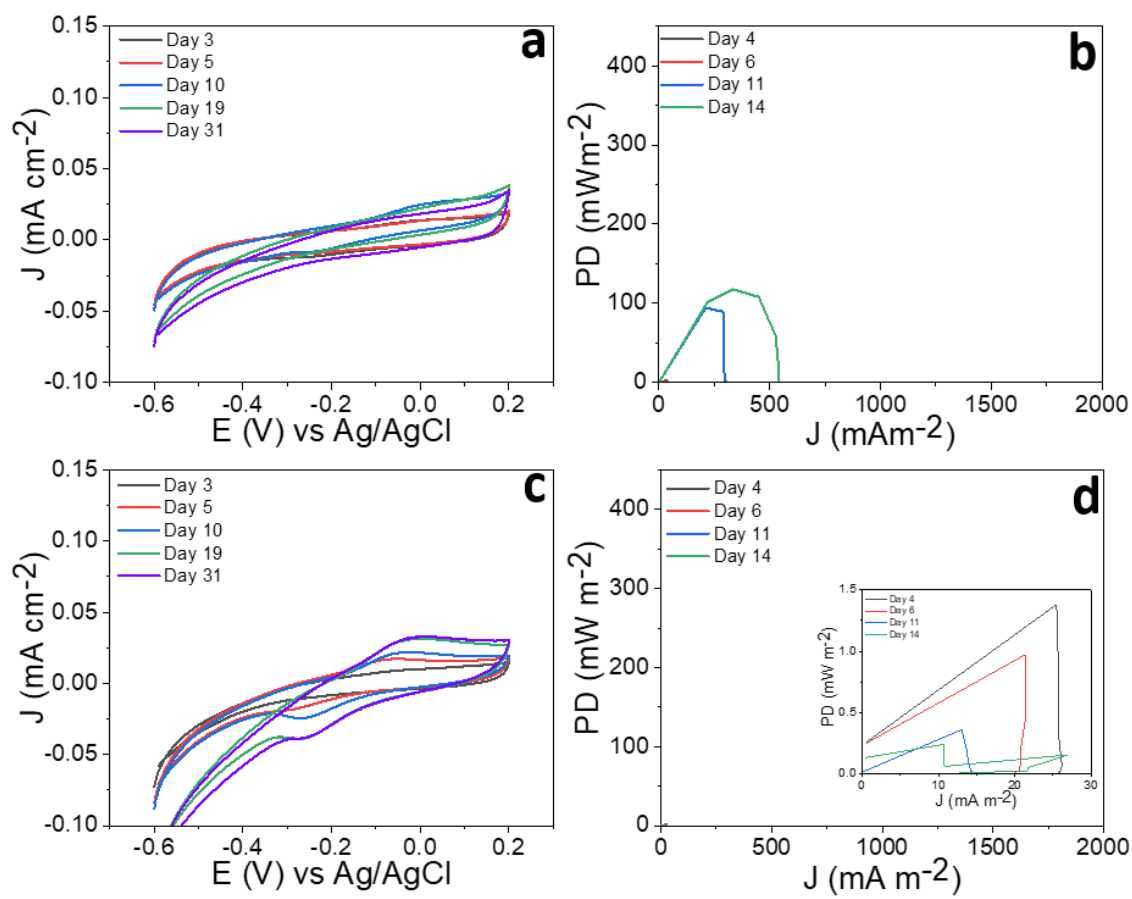
**Figure S4.** Voltage output obtained when cells were connected at  $1K\Omega$  as function of time for all tested MFC devices during the entire period of operation.

**Table S1.** Maximum power density values recorded at day 6 for MFC devices shown in Figure 7 in the main text.

Sample	Max. power density (mW m <sup>-2</sup> )	Current density at maximum (mA m <sup>-2</sup> )
GR_Man1	2.75	36.0
GR_Lac1	1.21	23.9
GR_bare1	4.80	47.5

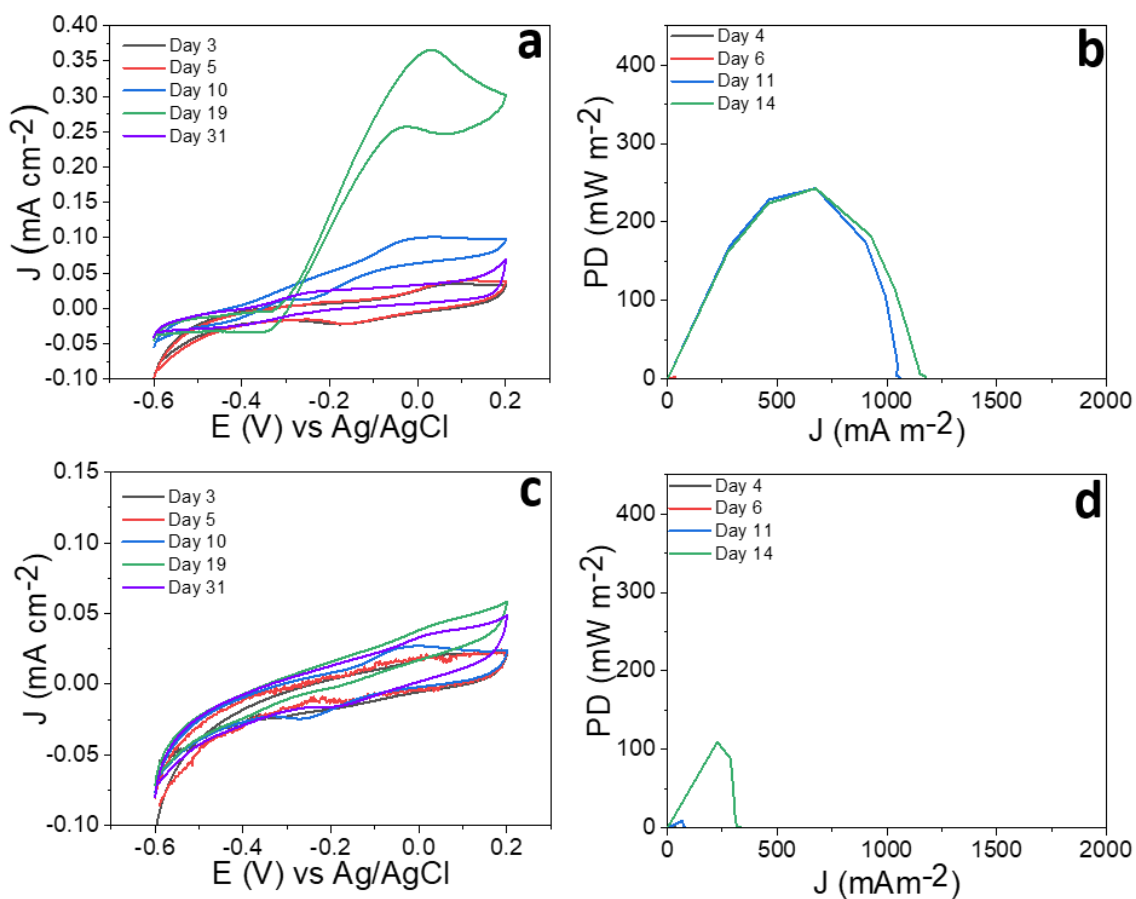


**Figure S5.** In situ CV curves of bare graphite anodes in the anodic compartment of MFC devices obtained at 5 mV s<sup>-1</sup> after day 3, day 5, day 10, day 19 and day 31 and their corresponding power density curves obtained at day 4, 6, 11 and 14; GR\_bare#1 (a, b) and GR\_bare#3 (c,d).



**Figure S6.** In situ CV curves of GR\_Lac anodes in MFC devices obtained at 5 mV s<sup>-1</sup> after day 3, day 5, day 10, day 19 and day 31 and their corresponding power density curves obtained at day 4, 6, 11 and 14; GR\_Lac#1 (a, b) and GR\_Lac#2 (c,d).





**Figure S7.** In situ CV curves of GR\_Man anodes in MFC devices obtained at  $5 \text{ mV s}^{-1}$  after day 3, day 5, day 10, day 19 and day 31 and their corresponding power density curves obtained at day 4, 6, 11 and 14; GR\_Man#1 (a, b) and GR\_Man#2 (c,d).