

# **Spermine oxidase-substrate electrostatic interactions: the modulation of enzyme function by neighboring colloidal γ-Fe<sub>2</sub>O<sub>3</sub>**

Graziano Rilievo<sup>1</sup>, Massimiliano Magro<sup>1</sup>, Federica Tonolo<sup>1</sup>, Alessandro Cecconello<sup>1</sup>, Lavinia Rutigliano<sup>2</sup>, Aura Cencini<sup>1</sup>, Simone Molinari<sup>3</sup>, Maria L. Di Paolo<sup>4</sup>, Cristian Fiorucci<sup>5</sup>, Marianna Nicoletta Rossi<sup>5</sup>, Manuela Cervelli<sup>5,\*</sup>, Fabio Vianello<sup>1,6</sup>

1 Department of Comparative Biomedicine and Food Science, University of Padua, Viale dell'Università 16, 35020 Legnaro, Italy

2 Department of Molecular medicine, Sapienza University of Rome, Laboratory Affiliated to Istituto Pasteur Italia, Fondazione Cenci Bolognetti, Sapienza University of Rome, Viale Regina Elena 291, 00161 Rome, Italy

3 Department of Geosciences, University of Padua, Via Gradenigo 6, 35131 Padova, Italy

4 Department of Molecular Medicine, University of Padua, University of Padua, Via G. Colombo 3, 35131 Padova, Italy

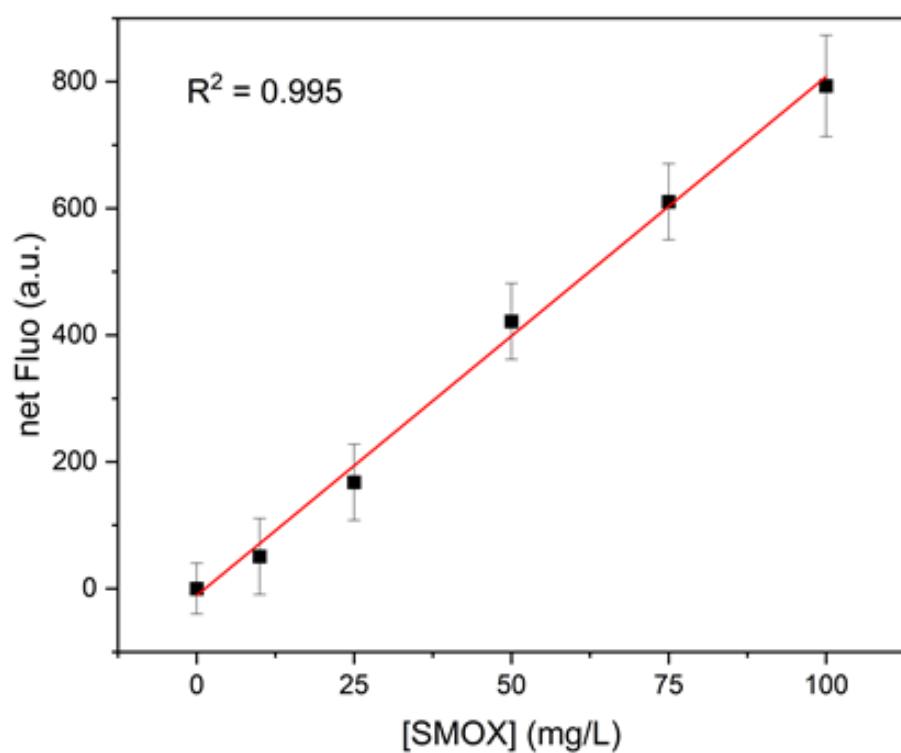
5 Department of Science, University of Roma 3, Viale Guglielmo Marconi 446, 00146, Rome, Italy

6 International Polyamines Foundation ‘ETS-ONLUS’, Via del Forte Tiburtino 98, 00159 Rome, Italy

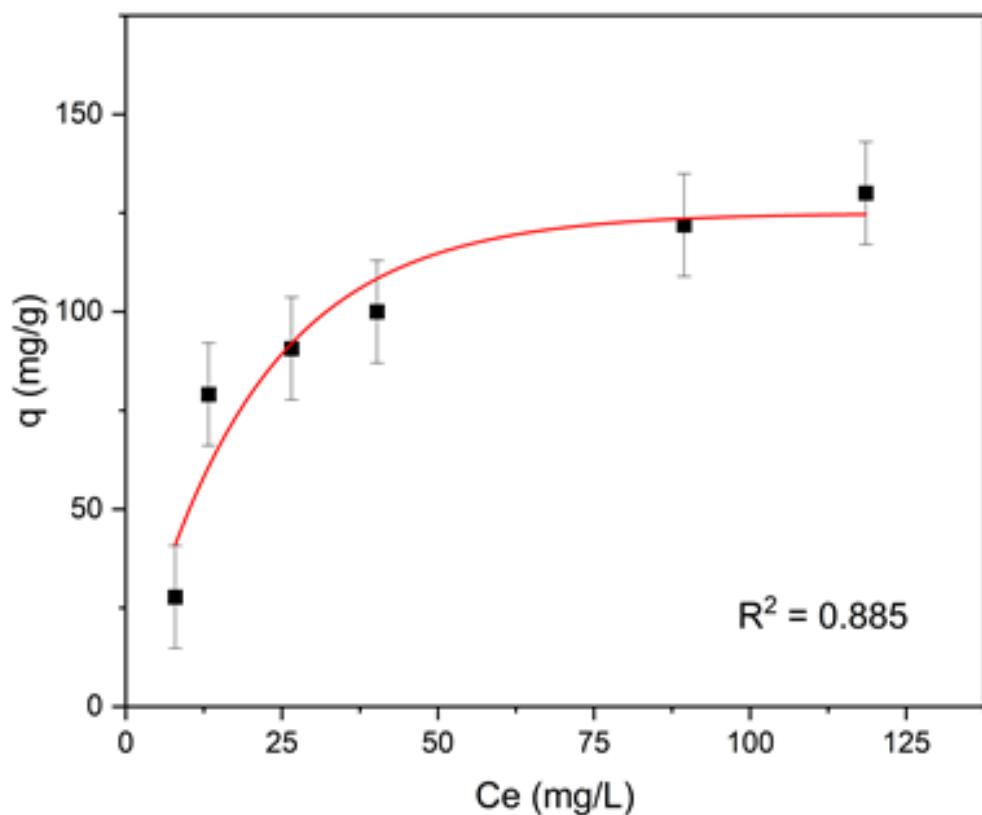
\* Correspondence: manuela.cervelli@uniroma3.it; Tel.: +39 06 5733 82448

## **Supplementary Information**

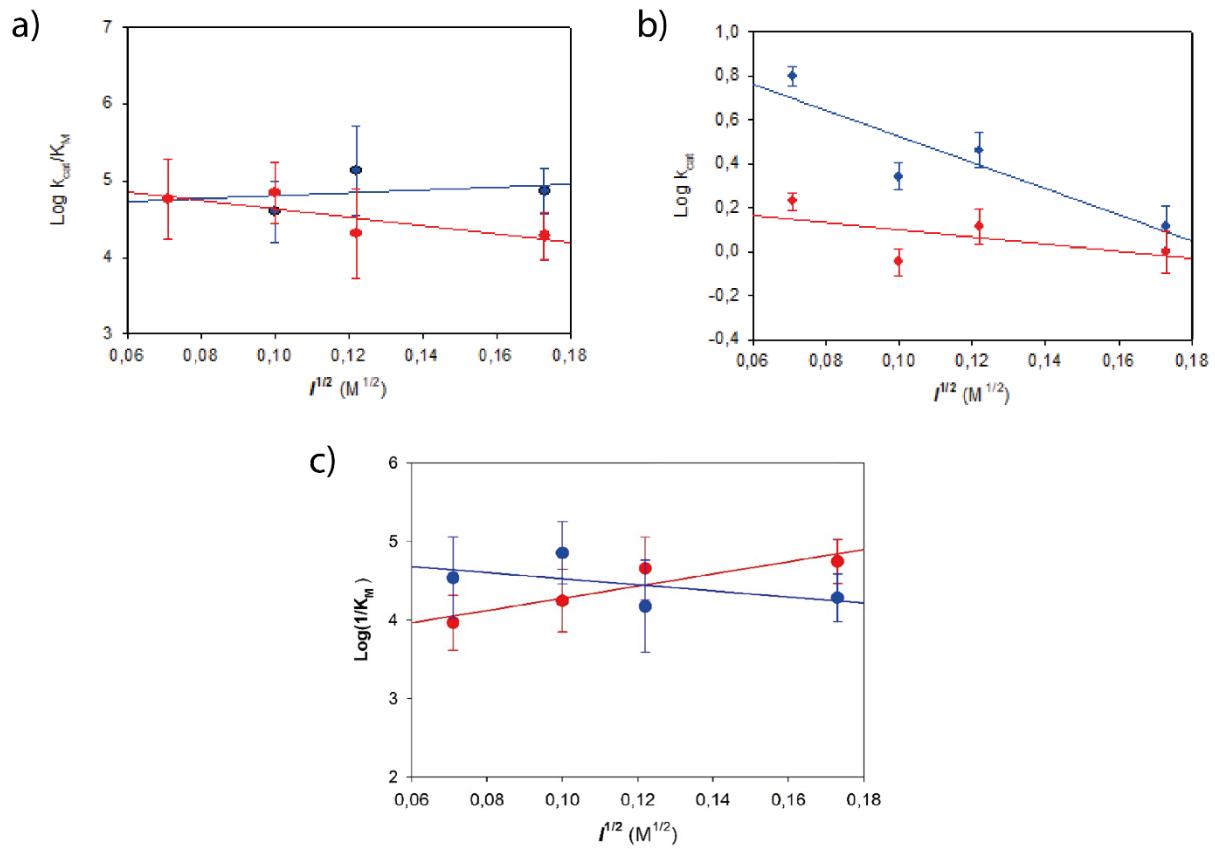
## Supplementary figures



**Figure S1.** Fluorescence calibration curve of the enzyme spermine oxidase in 10 mM HEPES pH 8.



**Figure S2.** Giles isotherm of the SMOX binding onto SAMNs.



**Figure S3.** Dependence of kinetic parameters of soluble SMOX and SAMN@SMOX on ionic strength. A) Dependence of  $\text{Log}(k_{\text{cat}}/K_M)$  of SMOX and SAMN@SMOX on ionic strength; B) Dependence of  $\text{Log}(k_{\text{cat}})$  of SMOX and SAMN@SMOX on ionic strength; C) Dependence of  $\text{Log}(1/K_M)$  of SMOX and SAMN@SMOX on ionic strength; (●), SMOX; (●), SAMN@SMOX