

Bioconjugation of Protein-Repellent Zwitterionic Polymer Brushes Grafted from Silicon Nitride

Ai T. Nguyen,^a Jacob Baggerman,^b Jos Paulusse,^a Han Zuilhof,^{a,} and Cees J.M. van Rijn^{a,b,*}*

a) Laboratory of Organic Chemistry, Wageningen University, Dreijenplein 8, 6703 HB Wageningen,
The Netherlands b) Aquamarijn Micro Filtration B.V., Berkelkade 11, 7201JE Zutphen, The
Netherlands

Corresponding authors: Han Zuilhof, E-mail: Han.Zuilhof@wur.nl; Phone: +31 – 317 – 482– 361; Fax:
+31 – 317 – 484914; Cees van Rijn, E-mail: Cees.vanRijn@wur.nl, Phone: +31 – 317 – 482 – 370, Fax:
+31 – 84 – 882 3204

CONTENTS

1. Narrow-scan XPS spectrum of S_{2p} region of polySBMA surface
2. Relationship between polySBMA thickness and the intensity of retained bromides
3. Fibrinogen adsorption of polySBMA-grafted on Si_xN₄ surfaces with different thicknesses
4. Narrow-scan XPS spectrum of Br_{3d} region of NH₂-polySBMA surface
5. Top-view and cross-section AFM images of the polySBMA films after 2 consecutive reactions
6. Top-view and cross-section AFM images of the modified films before and after antibody attachment
7. Narrow-scan XPS spectrum of C_{1s} region of antibody-polySBMA surface

1. Narrow-scan XPS spectrum of S_{2p} region of polySBMA surface

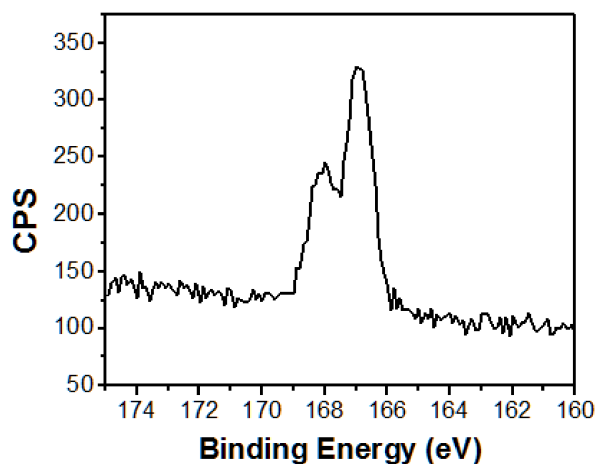


Figure S1. Narrow-scan XPS spectrum of S_{2p} region of polySBMA surface

2. Relationship between polySBMA thickness and the intensity of retained bromides obtained by wide-scan XPS spectra.

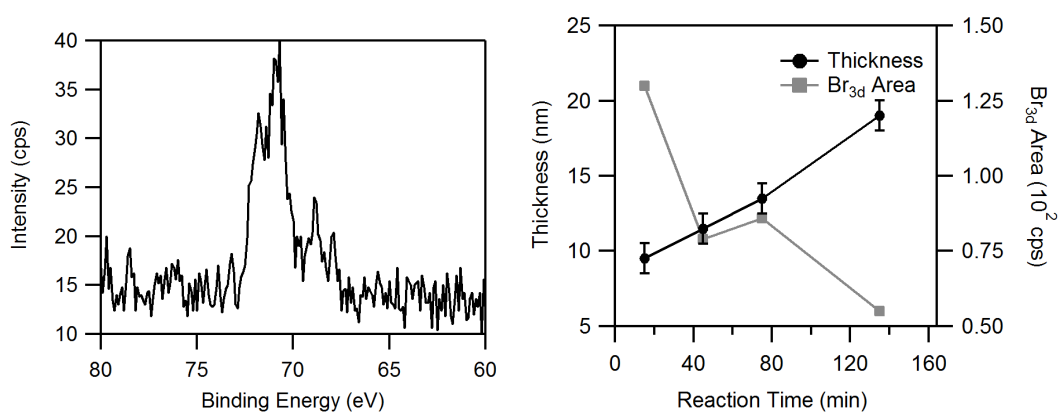


Figure S2. Narrow-scan XPS spectrum of Br_{3d} region (left) of a polySBMA-coated Si_xN_4 surface and polySBMA film thickness and Br_{3d} signal intensity as function of polymerization time (right)

3. Fibrinogen adsorption on polySBMA surfaces with different thicknesses in comparison with hydrophobic C₁₆-coated surfaces was measured by reflectometry.¹

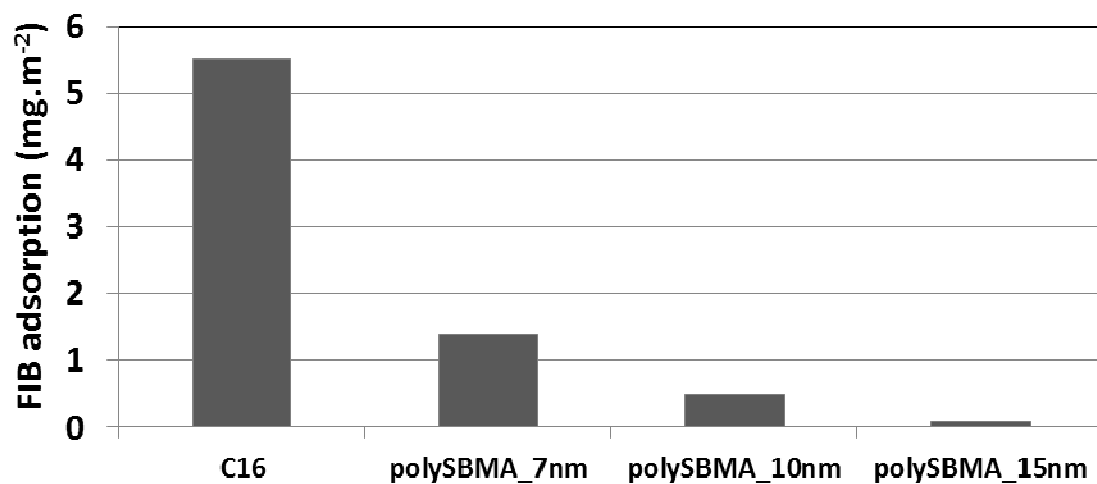


Figure S3: FIB adsorption on modified surfaces
FIB concentration in PBS was 0.1 g.L⁻¹.

4. Narrow-scan XPS spectrum of Br_{3d} region of NH₂-polySBMA surface showing disappearance of Br_{3d} signal at 70 eV.

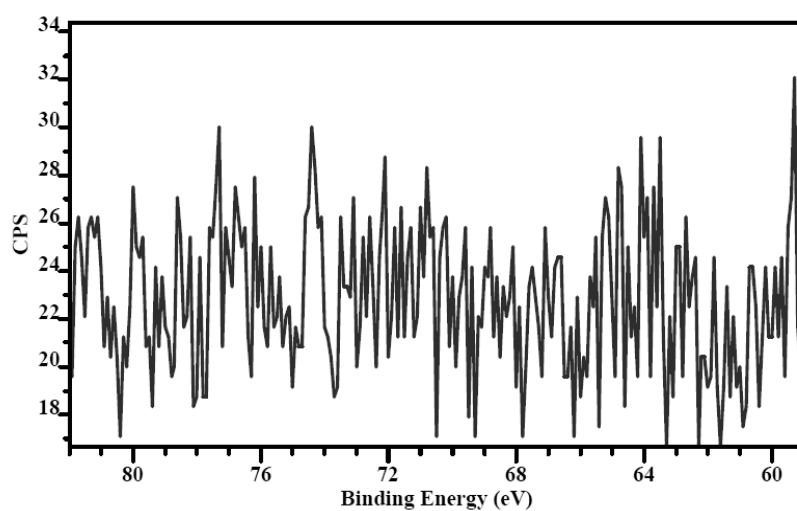


Figure S4. Narrow-scan XPS spectrum of Br_{3d} region of NH₂-polySBMA surface

5. Top-view and cross-section AFM images of the polySBMA films after reaction with trifunctional tris(2-aminoethyl)amine linkers and bifunctional suberic acid bis(*N*-hydroxysuccinimide ester), respectively.

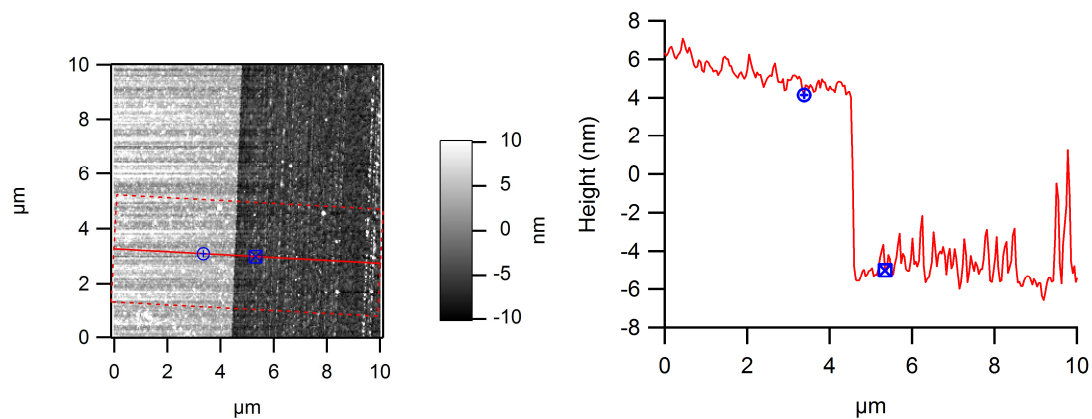


Figure S5. Top-view (left) and cross-section (right) AFM images of polySBMA

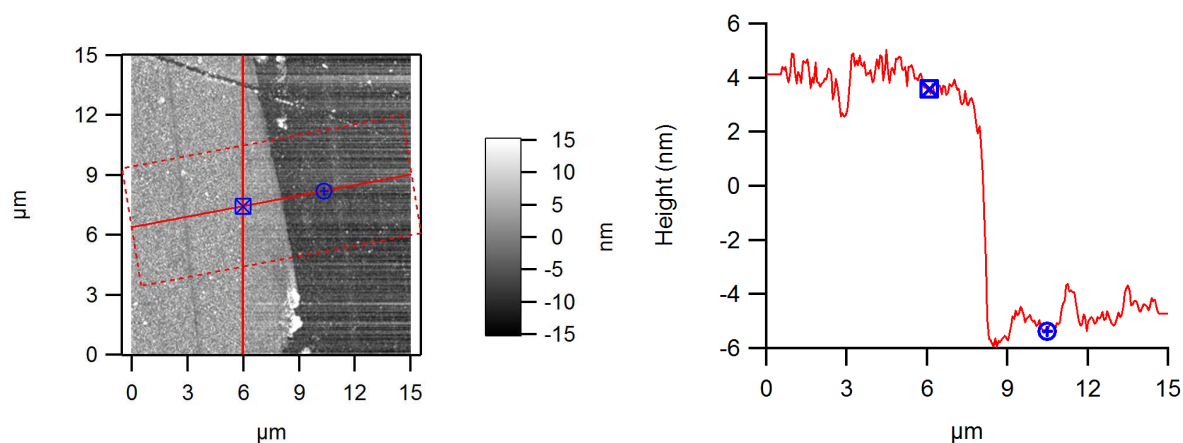


Figure S6. Top-view (left) and cross-section (right) AFM images of NH₂-polySBMA

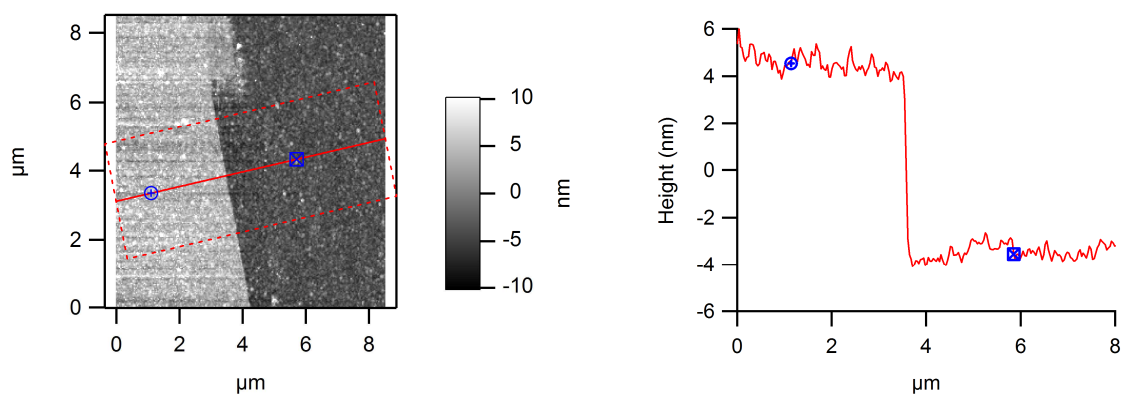


Figure S7. Top-view (left) and cross-section (right) AFM images of NHS-polySBMA

6. Top-view and cross-section AFM images of the NHS-polySBMA surface (before antibody attachment) and antibody-coated polySBMA (after antibody attachment)

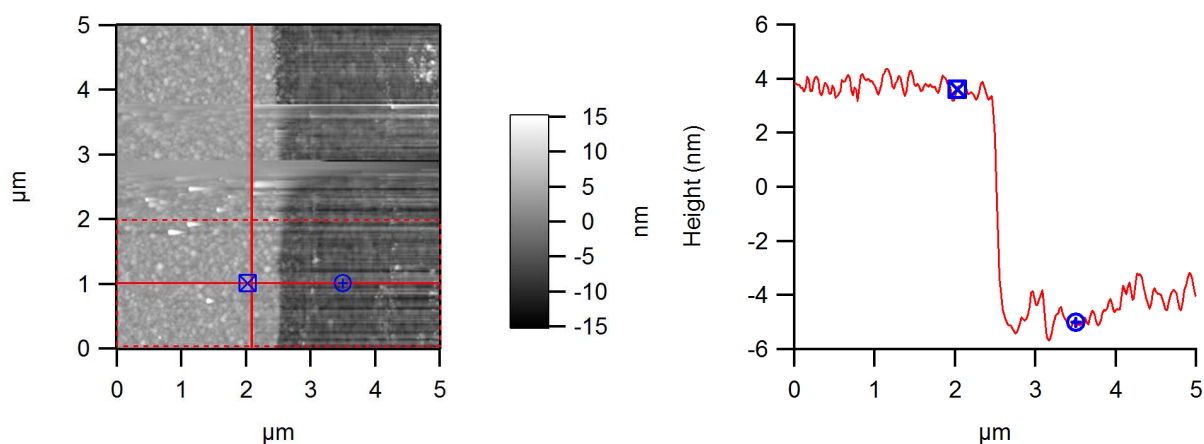


Figure S8. Top-view (left) and cross-section (right) AFM images of NHS-polySBMA

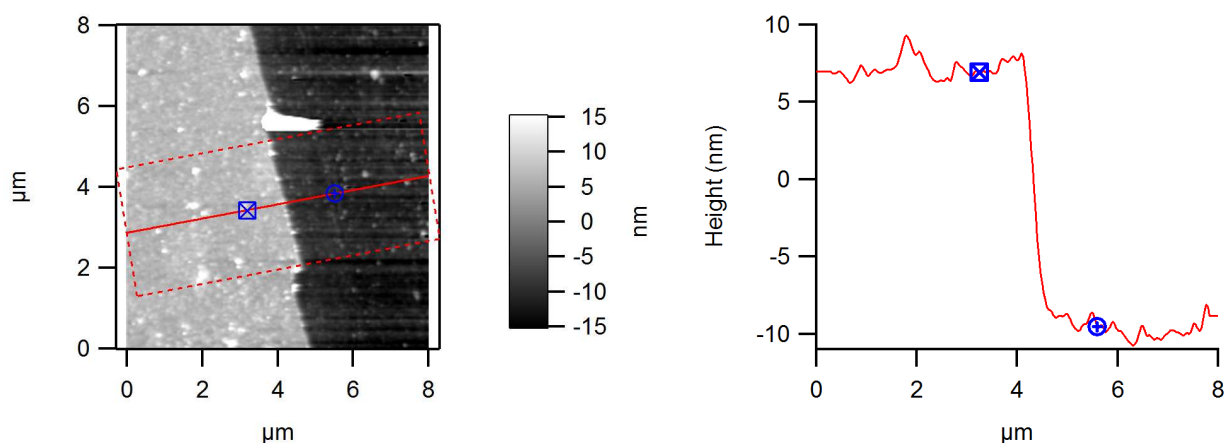


Figure S9. Top-view (left) and cross-section (right) AFM images of antibody-polySBMA

7. Narrow-scan XPS spectrum of C_{1s} region of antibody-polySBMA surface

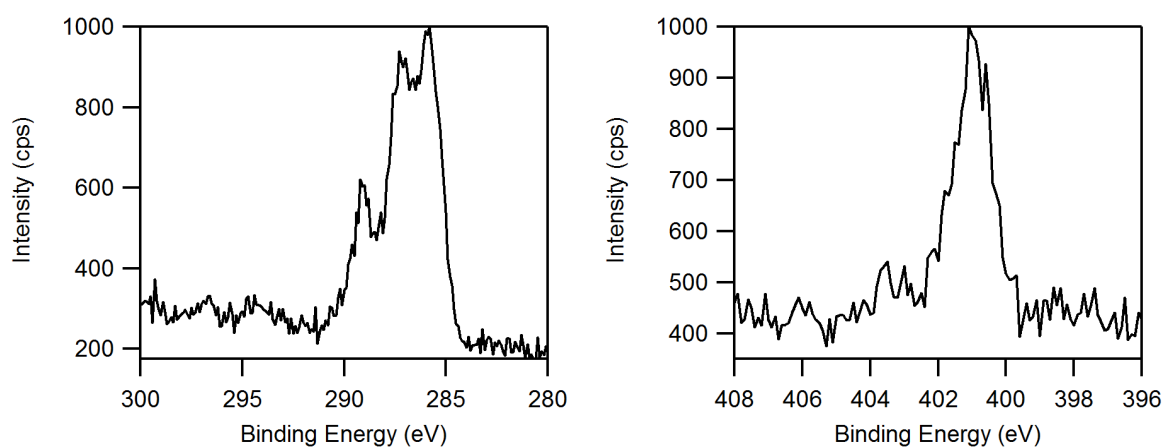


Figure S10. Narrow-scan XPS spectrum of C_{1s} region (left) and N_{1s} region (right) of antibody-polySBMA surface

REFERENCE:

1. Nguyen, A. T.; Baggerman, J.; Paulusse, J. M. J.; van Rijn, C. J. M.; Zuilhof, H., *Langmuir* 2011, 27, (6), 2587-2594.