

Accepted Manuscript

Full length article

Preservation of the soft protein corona in distinct flow allows identification of weakly bound proteins

C. Weber, J. Simon, V. Mailänder, S. Morsbach, K. Landfester

PII: S1742-7061(18)30336-2
DOI: <https://doi.org/10.1016/j.actbio.2018.05.057>
Reference: ACTBIO 5510

To appear in: *Acta Biomaterialia*

Received Date: 26 February 2018
Revised Date: 25 April 2018
Accepted Date: 31 May 2018

Please cite this article as: Weber, C., Simon, J., Mailänder, V., Morsbach, S., Landfester, K., Preservation of the soft protein corona in distinct flow allows identification of weakly bound proteins, *Acta Biomaterialia* (2018), doi: <https://doi.org/10.1016/j.actbio.2018.05.057>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



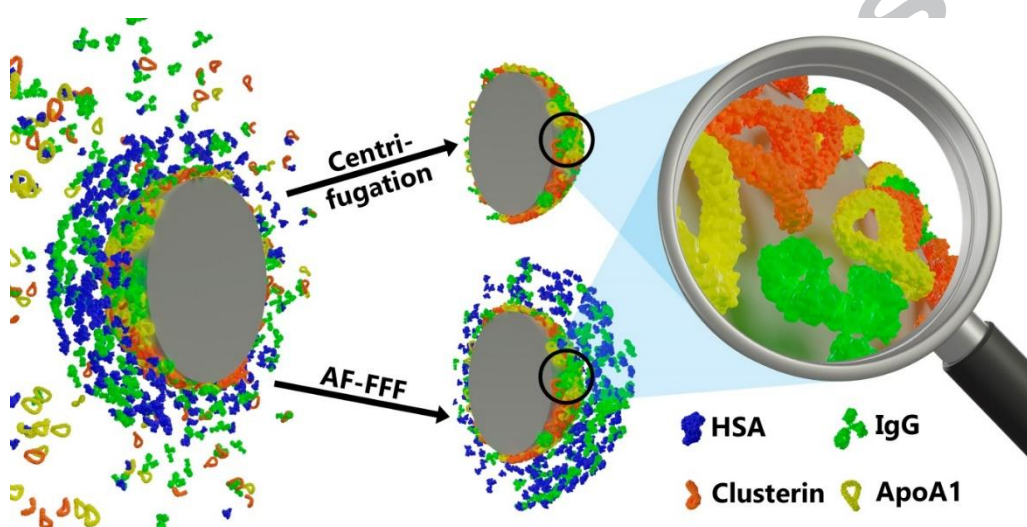
Preservation of the soft protein corona in distinct flow allows identification of weakly bound proteins

C. Weber,^a J. Simon,^{a,b} V. Mailänder,^{b,a} S. Morsbach^{a*} and K. Landfester^a

^a Max Planck Institute for Polymer Research, Ackermannweg 10, 55128 Mainz, Germany

^b Department of Dermatology, University Medical Center of the Johannes Gutenberg-University Mainz, Langenbeckstrasse 1, 55131 Mainz, Germany

Corresponding author E-mail: morsbachs@mpip-mainz.mpg.de



Abstract

Nanocarriers that are used for targeted drug delivery come in contact with biological liquid and proteins will adsorb to the nanocarriers' surface to form the so called 'protein corona'. The protein corona defines the biological identity and determines the biological response towards the nanocarriers in the body. To make nanomedicine safe and reliable it is required to get a better insight into this protein corona and, therefore, the adsorbed proteins have to be characterized. Currently, centrifugation is the common method to isolate the protein corona for further investigations. However, with this method it is only possible to investigate the strongly bound proteins, also referred to as 'hard protein corona'. Therefore, we want to introduce a new separation technique to separate nanoparticles including the soft protein corona containing also loosely bound proteins for further characterizations. The used separation technique is the asymmetric flow field-flow fractionation (AF4). We were able to separate the nanoparticles with proteins forming the soft protein corona and were able to show that only the hard protein corona directly influences the cell uptake behavior.

Keywords

soft and hard protein corona; nanocarriers; asymmetric flow field-flow fractionation; biological identity

Download English Version:

<https://daneshyari.com/en/article/6482766>

Download Persian Version:

<https://daneshyari.com/article/6482766>

[Daneshyari.com](https://daneshyari.com)