

Evaluating blood-biomaterial interactions: The Long Journey from Surface Proteins to *In vivo* Performance

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Abstract

The absence of standardized tests for blood compatibility, the difficulties of reproducibly handling blood, the multiple coagulation systems in the body and species-to-species differences in blood reactivity have all complicated our ability to identify "blood compatible" biomaterials. This talk will start with a surface hypothesis for blood compatibility based on albumin affinity, albumin retention and fibrinogen inactivation. It will then discuss conundrums associated with triggering the intrinsic clotting system. Finally, ex vivo evaluation of platelet interactions with biomaterials will be discussed.

Biography

Ratner received his Ph.D. (1972) in polymer chemistry from the Polytechnic Institute of Brooklyn and is now Professor of Bioengineering and Chemical Engineering, University of Washington (UW). He is a fellow AIMBE, AVS, AAAS, BMES, ACS, ACS-POLY and the International College of Fellows Biomaterials Science and Engineering. In 2002 Ratner was elected to the National Academy of Engineering, USA. He has launched seven companies. He won numerous awards including the AVS Welch Award (2002), SFB Founders Award (2004), the BMES Pritzker Award (2008), the Acta Biomaterialia Gold Medal (2009), Galletti Award (2011), the George Winter Award of the European Society for Biomaterials (2012) and the UW School of Medicine Lifetime Innovator and Inventor Award (2014). He served as President of Society For Biomaterials in 1998 and AIMBE in 2002. He directs UW Engineered Biomaterials (UWEB21) Engineering Research Center and is co-director of the Center for Dialysis Innovation. He holds the Darland Endowed Chair in Technology Commercialization. His research interests include biomaterials, medical devices, tissue engineering-regenerative medicine, biocompatibility, polymers, surface analysis and plasma thin film deposition.

