

Next Generation of PEG with Sulfoxide-containing Side Chain

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PEGylation is widely used in the conjugation of therapeutic drugs to improve their stability, solubility, and circulation half-life. However, there is increasing concern over the use of PEG in terms of its inherent immunogenicity which can lead to accelerated blood clearance and hypersensitivity reactions due to pre-existing anti-PEG antibodies.^{1,2} Novel polymers with exceptional hydrophilicity and biocompatibility have been designed and studied as alternatives of PEG for biological applications³⁻⁶. However, the likelihood of the generation of antibodies specific to these new antifouling polymers cannot be underestimated and needs further investigation.

In this presentation, I will describe a novel low-fouling polymers based on linear PEG in which a side chain containing the sulfoxide structure was incorporated. The properties of this polymer will be compared to conventional PEG and the potential of the coating onto iron oxide nanoparticles will be presented. The presentation will focus on the physical properties of this novel PEG derivative and its biological performance including immunogenicity and antifouling capacity.

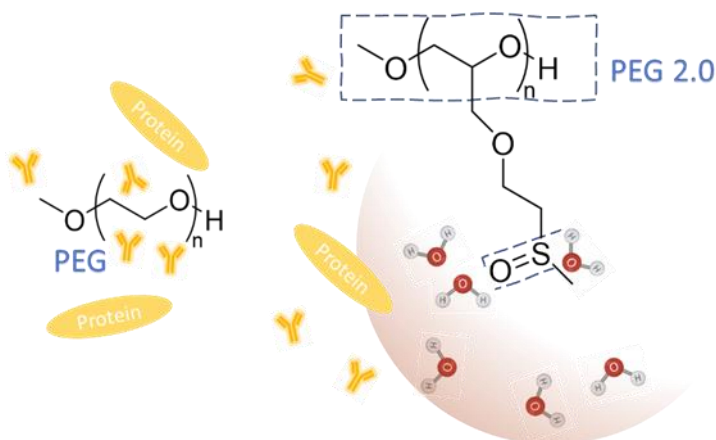


Figure 1: PEG and new generation of PEG in presence of anti-PEG antibody.

References:

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