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Plantation Lobby
907

Alkoxyamine Polymers: Versatile Materials for Surface Ligation Applications

Lindsey Hines[1], Jessica Moore[1], David Dahl[1], Belinda Lady[2], Johnathan Brantley[1], and Hasan Palandoken[1]. (1) Western Kentucky University, Bowling Green, KY, (2) University of Tennessee, Knoxville, TN

Immobilization of biomolecules (i.e., proteins, carbohydrates), on polymeric surfaces has been an area of intense research. The resultant bioconjugates often display increased stability, bioavailability and activity. Our research program seeks to explore the utility of the alkoxyamine (RONH2) functional group in new materials as versatile ligating sites for the immobilization of various compounds.

The ease with which alkoxyamines (RONH2) condense with aldehydes or ketones has prompted their widespread use in labelling liposome, bacterial and mammalian cell surfaces as well as chemoselectively ligating small molecule ‘recognition elements' onto polyfunctional substrates. These condensation reactions proceed in aqueous media to afford the robust oxime ethers in near quantitative yields, making these conjugations ideal for a variety of applications. Thus, alkoxyamines are excellent ‘molecular anchors' to immobilize aldehyde/ketone compounds on a surface.

We have installed alkoxyamines on polymer surfaces to tether a variety of compounds through the covalent oxime ether bond to the polymer backbone. Our synthetic efforts towards these novel alkoxyamine polymers as well as initial aldehyde/ketone immobilization studies will be discussed.

Back to Meeting in Miniature Posters-IV
Back to The 60th Southeastern Regional Meeting (SERMACS) (November 12–15, 2008)