

Wednesday, August 20th, 2014

LSC 3 - Life Sciences Centre

2350 Health Sciences Mall

**12:00-12:30pm**



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### **“Cell Surface Engineering: Enhancing Biological Reactions on Cell Surfaces using Macromolecular Crowding”**

Cell surface engineering has emerged as a new technology to enhance cell function and survival with applications in targeted drug delivery, immune modulation and regenerative medicine. In our efforts to create universal donor red blood cells, we investigated the enzymatic removal of ABO carbohydrate antigens and grafting of polymers to cell surfaces to camouflage minor antigens. Despite many achievements in the field of cell surface engineering, tools that control the modification process remain largely unearthed, prompting the use of large amounts of expensive and potentially cell damaging reagents. Using macromolecular crowding, we enhanced biological reactions on cell surfaces (> 400 fold in some cases) including enzymatic removal of cell surface antigens, antibody binding and polymer grafting. In this talk, we will present our latest results in cell surface engineering, concentrating on the molecular mechanism of enhancing biological reactions on cell surfaces, accepted recently for publication in Nature Communications.