Multivalent targeting of the ASGP-receptor with glycan-conjugates

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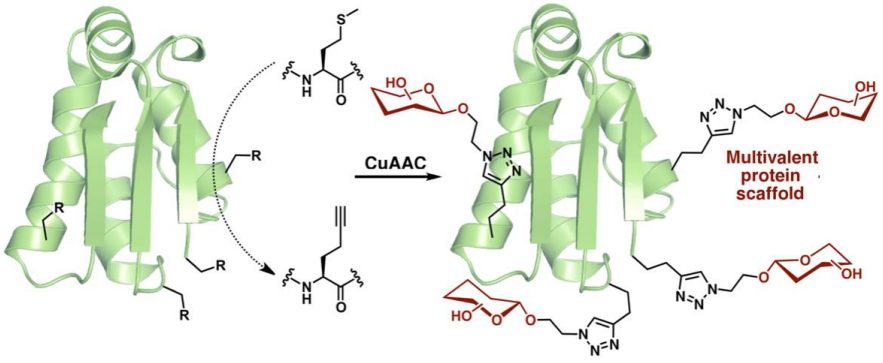
Abstract:

In this project novel multivalent glycan-conjugates for the targeted delivery of small cargo units to hepatocytes by addressing the asialoglycoprotein-(ASGP)-receptor will be synthesized. This will be achieved by using modern methods from organic synthesis, bioorganic chemistry and molecular biology, in particular solid phase peptide synthesis (SPPS), carbohydrate synthesis and chemoselective conjugation techniques, to achieve a precise spatial orientation for different glycan units to be attached to fluorophores or pharmaceutically active molecules. An example for this approach was recently published in our lab by using proteins as multivalent scaffolds for lectin binding (Scheme and Reference 1.).
Modern state-of-the art facilities for the synthesis, purification and characterization of these molecules will be offered, which will be probed in collaboration with the laboratories mentioned above. The main supervisor Prof. Hackenberger is located at the FMP Berlin-Buch, cellular hepatocyte uptake experiments (Reference 2.) will be conducted in collaboration with the laboratory of Bernd Lepenies (MPI Colloid Research, FU Berlin campus).



Publications:

1. L.M. Artner, L. Merkel, N. Bohlke, F. Beceren-Braun, C. Weise, J. Dernedde, N. Budisa, C.P.R. Hackenberger, *Chem. Comm.* **2012**, *48*, 522

2. G.J. Bernardes, R. Kikkeri, M. Maglinao, P. Laurino, M. Collot, S.Y. Hong, B. Lepenies, P.H. Seeberger, *Org. Biomol. Chem.* **2010**; 8, 4987.