**Next-generation bioconjugates for**

 **intra- and extracellular targeting**

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**Lecture room 0.1, S4 ground floor**

**Campus Sterre**

**Krijgslaan 281, B-9000 Gent**

Abstract

In this presentation, l will focus on the chemical modification of functional proteins for pharmaceutical and medicinal applications.[1] In my laboratory, we use a combined approach of recently developed chemoselective reactionsand enzymatic ligations, for instance the so-called P5- or Tub-tag®-labeling,[2,3] for bioconjugation. By generating stable antibody-drug conjugates (ADCs),[3] structurally defined multivalent scaffolds[4] or cell-permeable antibodies via conjugating cyclic cell-penetrating peptides,[5] we provide new modalities for most challenging pharmaceutical targets, including next generation cancer therapeuticsor novel inhibitors against viral infections.

**References**

[1] D. Schumacher, C.P.R. Hackenberger, *Curr. Opin. Chem. Biol.* **2014**, *22*, 62-69.

[2] a) M.-A. Kasper et al., *Angew. Chem. Int. Ed*. **2019**, *58*, 11625-11630; b) M.-A. Kasper et al., *Angew. Chem. Int. Ed*. **2019**, *58*, 11631-11636; c) **M.-A. Kasper et al.,** Chem Sci. **2019**, 10, 6322-6329; d) C.E. Stieger et al. *Angew. Chem. Int. Ed*. **2021**, *60*, 15359-15364.

[3] a) D. Schumacher et al., *Angew. Chem. Int. Ed.* **2015**, *54(46)*, 13787-13791, b) D. Schumacher et al., *Chem. Sci.* **2017**,*8*, 3471-3478.

[4] **D. Lauster et al.,** Nature Nanotech. **2020**, 15, 373-379.

[5] a) N. Nischan et al., *Angew. Chem. Int. Ed.* **2015**, *54(6)*, 1950-1953; b) H. Herce et al., *Nature Chem.* **2017**,*9*, 762-771; c) A.F.L. Schneider et al., *Nature Chem.* **2021**, *13*, 530-539.

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