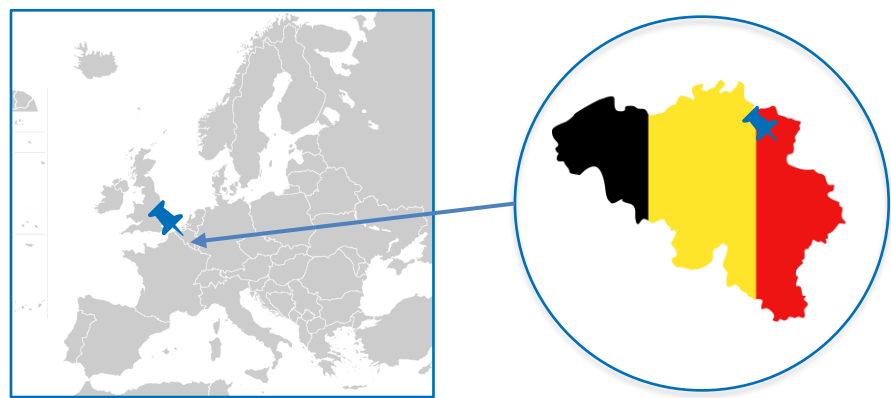


Heparin-binding domains in elastin-like proteins: a way towards tissue integration?

Niels Geysmans, Sander Driesen, Wanda Guedens, Peter Adriaensens and Geert-Jan Graulus

Biomolecule Design Group, Institute of Materials Research (IMO-IMOMEC), Hasselt University, Belgium



Context

Injectable hydrogels offer an elegant approach to increase stem cell retention following stem cell transplantation. To increase the integration of injectable hydrogels with the surrounding tissue, we envision elastin-like proteins (ELPs) containing heparin-binding domains (HBDs). These positively charged protein domains have been studied as affinity tag and are expected to also interact with negatively charged components in the extracellular matrix (ECM). We studied the interaction of positively charged model systems with hyaluronic acid in an indirect way by measuring changes in the viscosity of hydrogel formulations.

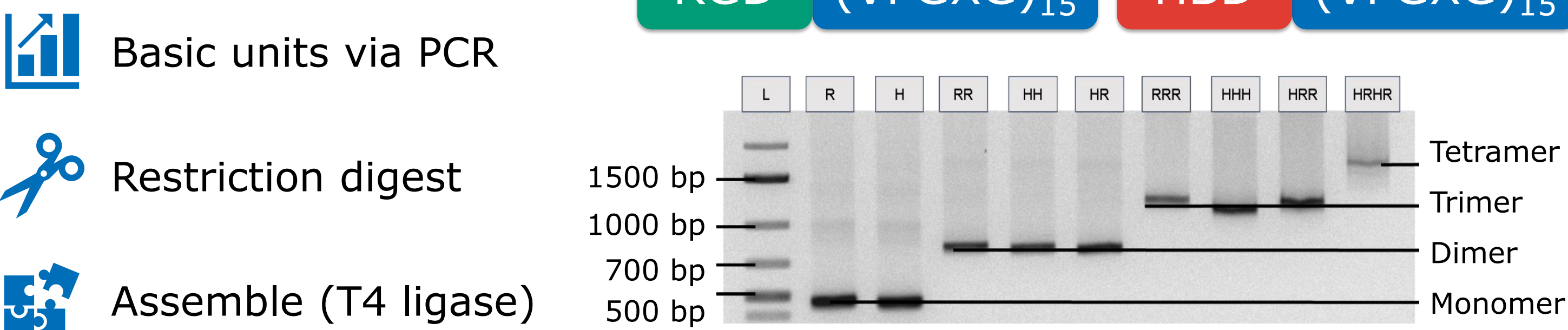
Contact information

+32 11 26 82 67
@BDG_UHasselt
geertjan.graulus@uhasselt.be
www.uhasselt.be/BDG

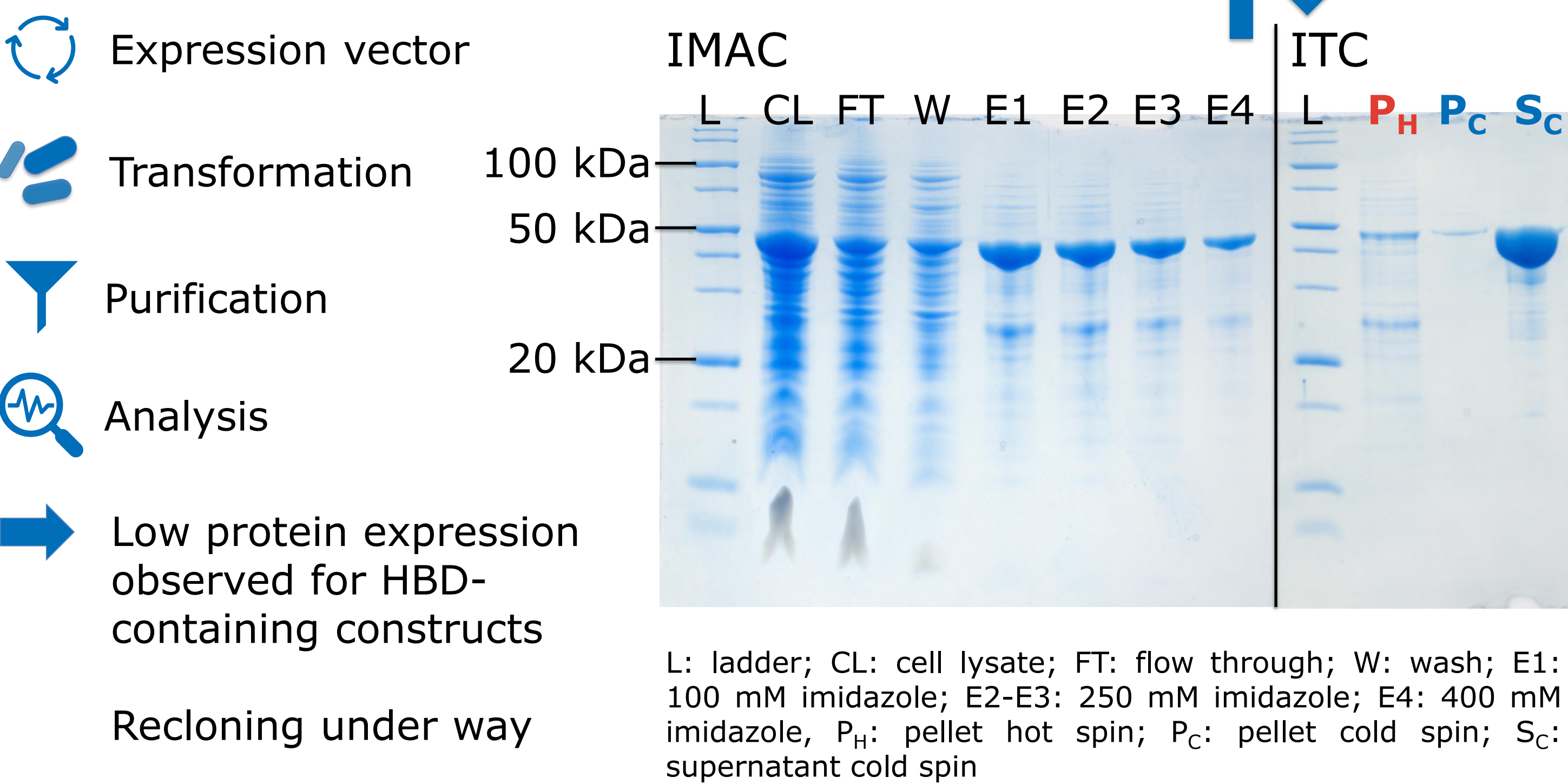


HBD ELPs

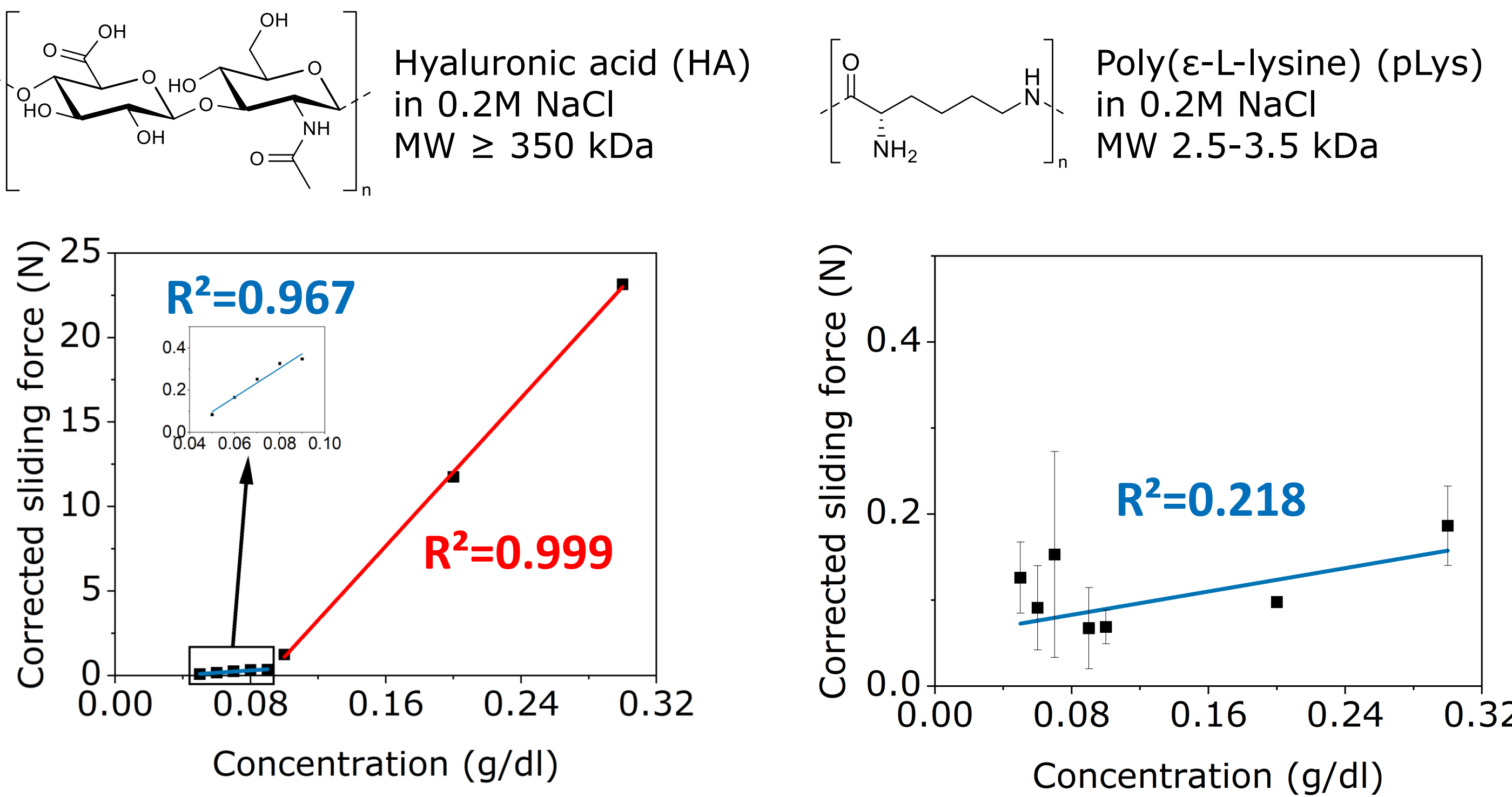
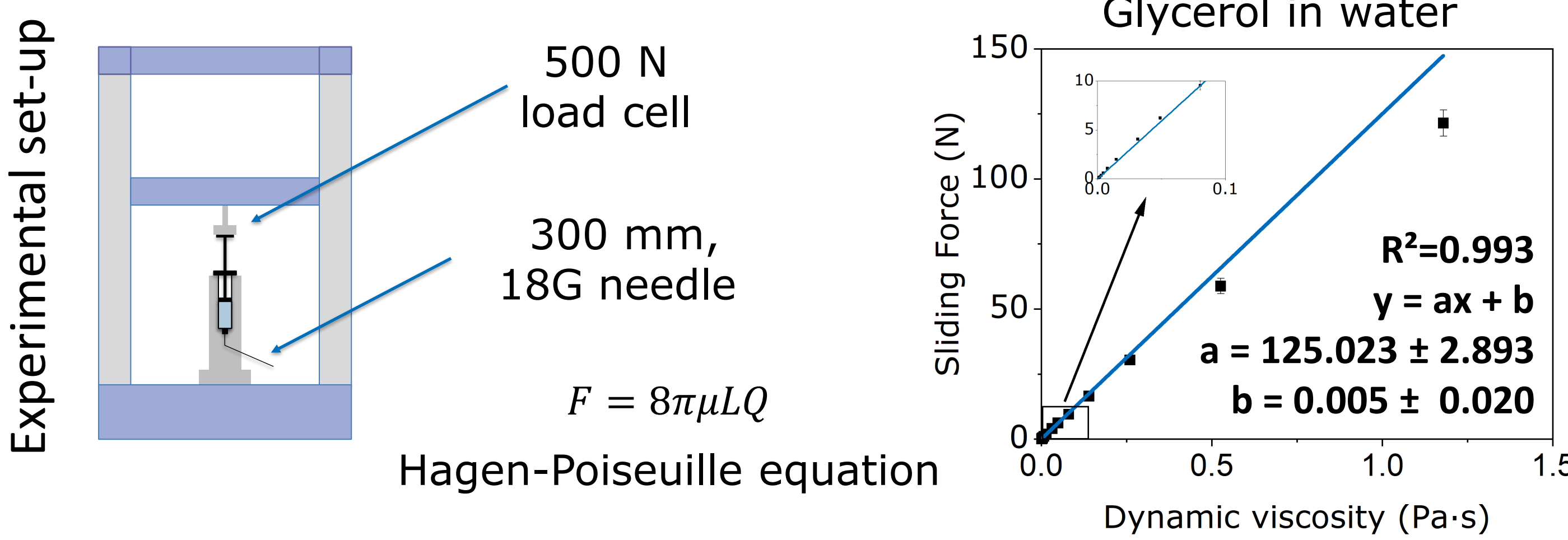
DNA modification



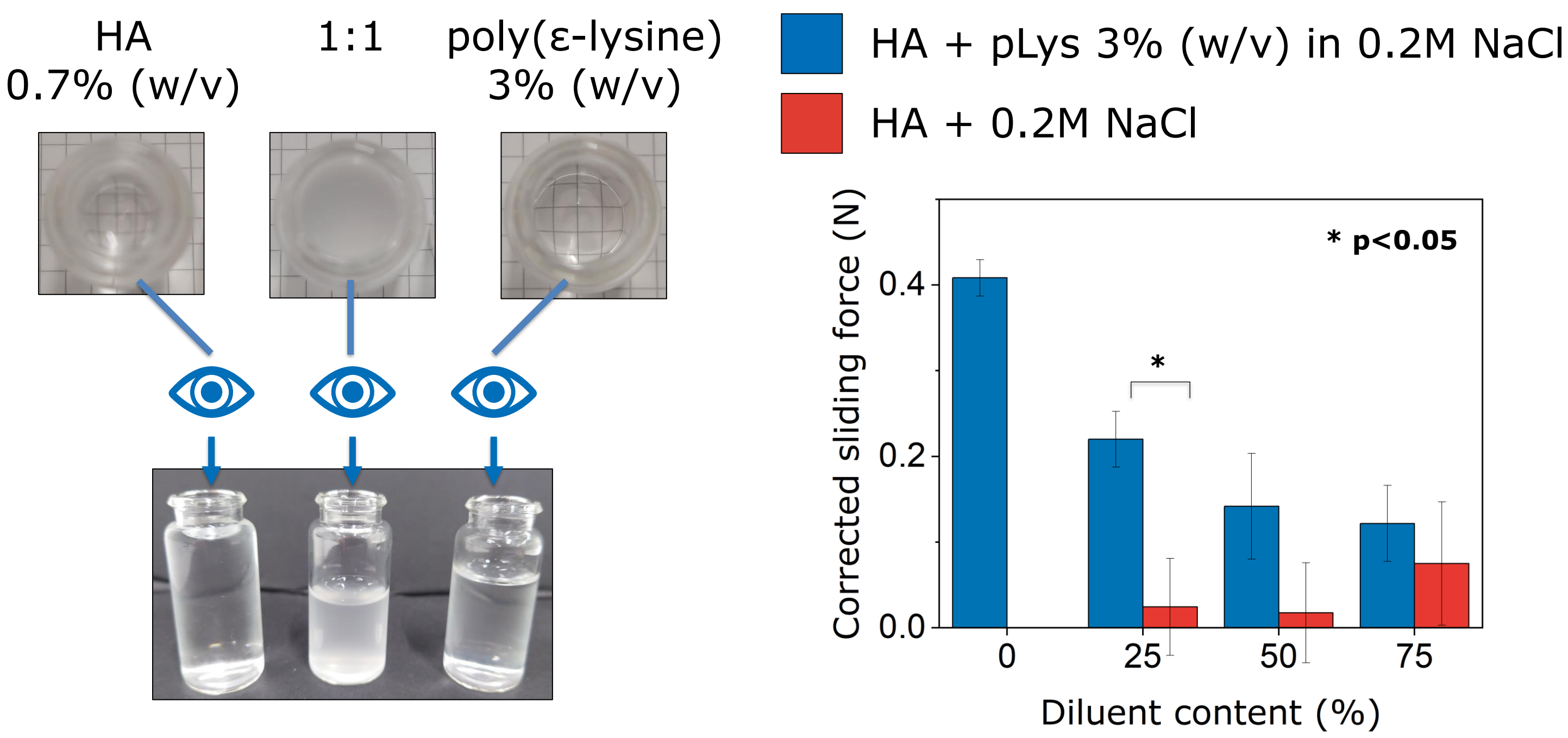
Protein expression



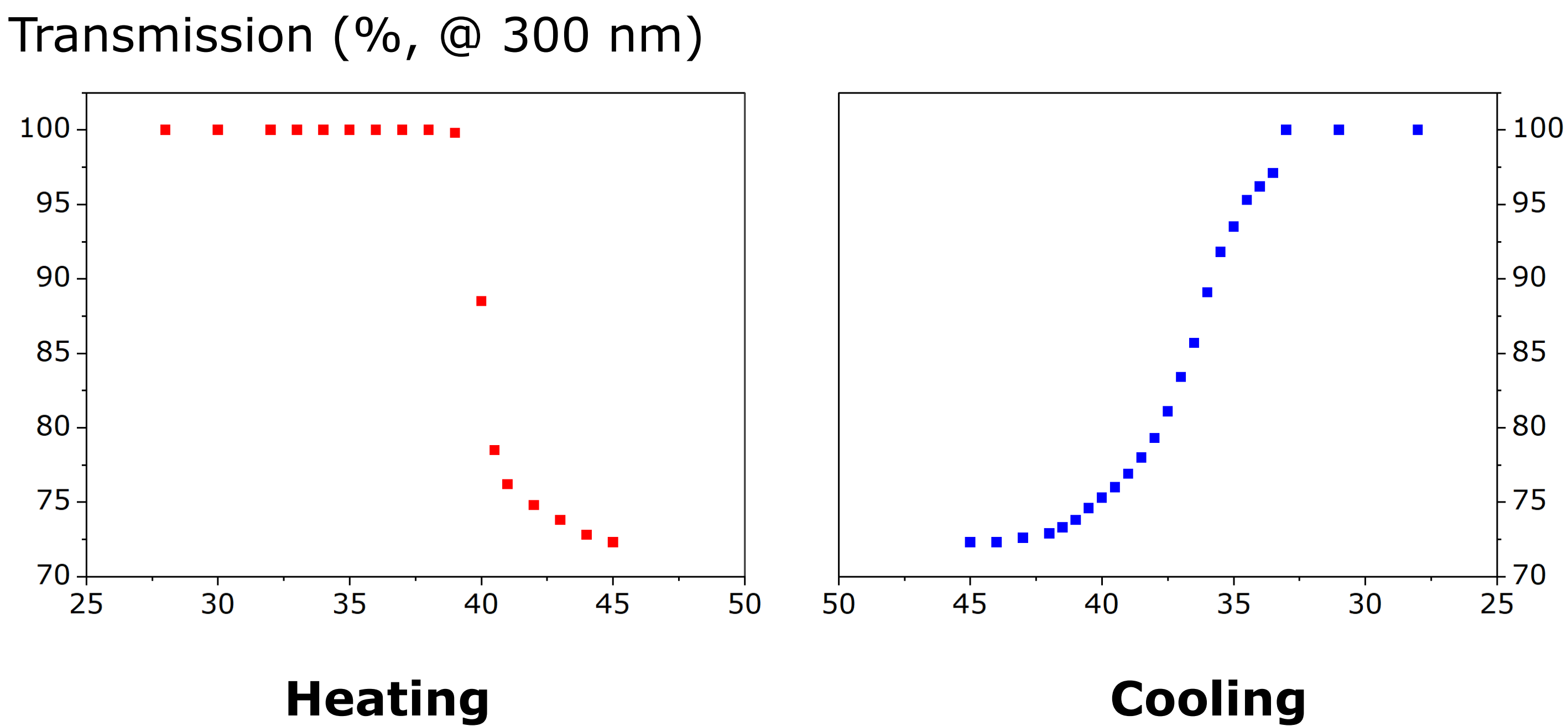
Mechanical analysers in rheology



Visually observed coacervation affects the corrected sliding force of HA solutions



Reversible self-assembly of ELPs (4R)



Conclusions and future perspectives

- Our set-up is sufficiently sensitive to detect self-assembly in dilute aqueous solutions.
- Protein expression of HBD-containing ELPs needs to be increased to allow for the in-depth analysis of the self-assembly of the HBD domains with negatively charged macromolecules

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