

Nanopore-based Single-Molecule Size-Discrimination (Np-SMSD) of short homopeptides under different experimental conditions.

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Nanopores have been recently used to perform the single-monomer-resolution size-discrimination of synthetic polymers [1,2,3], of short oligonucleotides [4] and of short homopeptides [5]. The high resolution and high sensitivity of this technology have major applications, as demonstrated by already commercialized nanopore-based DNA sequencing devices. It also opens new perspectives towards early *in vitro* diagnostics and protein sequencing. Experimental conditions have been shown to have a crucial impact on Np-SMSD. For example, we demonstrated that high temperature enables the single-monomer-resolution size-discrimination of synthetic polymers of high molar mass, not possible at room temperature [3]. In this talk, following our recent results [5], I shall present the effect of voltage, temperature and electrolyte concentration on the single-amino-acid-resolution size-discrimination of short homopeptides using a biological nanopore.

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- [4] Cao, C. *et al.* Discrimination of oligonucleotides of different lengths with a wild-type aerolysin nanopore. *Nat. Nanotechnol.* **11**, 713-718 (2016)
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