

# Cationic conjugated polymer technique can identify hypertension risk alleles

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A cationic conjugated polymer (CCP)-based multistep fluorescence

resonance energy transfer (MS-FRET) technique, which identifies hypertensive risk alleles, can improve and shorten the time to blood pressure control, according to a study published in the March 8 issue of *Science Translational Medicine*.

Qi Shen, from the Beijing National Laboratory for Molecular Sciences at the Chinese Academy of Sciences, and colleagues used a CCP-based MS-FRET technique to qualitatively analyze DNA genotypes associated with hypertension.

The researchers found that in a retrospective study of whole-blood samples from 150 patients hospitalized with hypertension, this technique successfully identified known hypertensive risk alleles on assessment of 10 genetic loci.

The detection method was then applied to a prospective clinical trial of 100 patients with essential hypertension. Based on the results from the MS-FRET technique, personalized treatment of [patients](#) with hypertension could effectively improve the rate of blood pressure control (94.0 versus 54.0 percent) and shorten the time to [blood pressure control](#) relative to conventional treatment (4.06 versus 5.82 days).

"Our system has the advantages of simple operation and high throughput detection, providing a potentially useful tool to aid in management of hypertension," the authors write. "This system could be applied to maximize the efficacy of antihypertensive medication and reduce rates of uncontrolled [hypertension](#), particularly in resource-limited settings."

Several authors are inventors on a Chinese patent application.

**More information:** Qi Shen et al, Sensitive detection of single-nucleotide polymorphisms by conjugated polymers for personalized treatment of hypertension, *Science Translational Medicine* (2023). [DOI:](#)

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