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Thermostable DNA helicase improves the sensitivity of digital PCR

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1 **Thermostable DNA helicase improves the sensitivity of digital PCR**

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17 Running title: Thermostable DNA helicase in digital PCR

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19 Key words: helicase; hyperthermophile; PCR; noise reduction; digital PCR.

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21 *Abbreviations:* EshA, Euryarchaeota-specific helicase; SNPs, single-nucleotide polymorphisms;
22 qPCR, quantitative PCR; CD, circular dichroism; dsDNA, double-stranded DNA; ssDNA,
23 single-stranded DNA.

24
25 **Highlights**

26 A thermostable helicase (*Tk-Upf1*) unwound duplex DNA with a 5' to 3' polarity.

27 *Tk-Upf1* eliminated noise DNAs derived from primer mis-annealing in PCR.

28 The thermostable helicase improved sensitivity of SNPs detection in digital PCR.

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