

## DNA binding and cleavage properties of ponicedin

Xia Xu, Yu Ke, Qi Zhang, Xiaoyu Qi, and Hongmin Liu

School of Pharmaceutical Sciences, Zhengzhou University, Henan, P R China

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### ABSTRACT

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**Aims and background.** Ponicedin, an effective component isolated from *Isodon rubescens*, possesses anticancer properties. In the present study, we proved its ability to bind to and cleave DNA. DNA binding and cleavage properties are important for designing the rational construction of new and more efficient drugs targeted to DNA, because DNA is the biological target with which many anti-tumor drugs and potential antineoplastic agents interact. The characterization of interaction of ponicedin not only provides insights into its biology, but also gives the opportunity for developing effective therapeutic agents for control of gene expression.

**Methods.** The interaction of ponicedin with DNA has been explored by using absorption spectroscopy, fluorescence spectroscopy, viscosity measurement, thermal denaturation and electrophoresis measurement.

**Results.** Firstly, adding ponicedin to a DNA solution could shift the absorption spectra to red. Secondly, ponicedin also raised the melting temperature and viscosity of DNA. Moreover, fluorescence of DNA binding with ethidium bromide was quenched by ponicedin. Finally, ponicedin showed nuclease activity.

**Conclusions.** We propose that the DNA binding and cleavage properties of ponicedin may underlie the mechanism of its cell toxic effects.

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**Key words:** cell toxicity, DNA binding, ponicedin.

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**Correspondence to:** Xia Xu, School of Pharmaceutical Sciences, Zhengzhou University, 450001, Henan, P. R. China. Tel +86-371-66658236; fax +86-371-66658236; e-mail xuxia@zzu.edu.cn, xuxia65@yeah.net

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