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## Arsenic and old telomerase

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Although arsenic is effective in the treatment of acute promyelocytic leukaemia, it also has carcinogenic side effects, but the exact mode of action in carcinogenesis remains unclear. In the November *Journal of Clinical Investigation*, Wen-Chien Chou and colleagues from [Johns Hopkins University School of Medicine](#), Baltimore, US show that, at clinically relevant doses, arsenic inhibits the transcription of the reverse-transcriptase subunit of the human telomerase gene (*hTERT*).

Chou *et al.* found that exposing NB4 leukemia cells to arsenic inhibited transcription of the *hTERT* gene by decreasing c-Myc and Sp1 transcription factor activities. Decreased *hTERT* activity led to chromosomal end lesions, which promoted either genomic instability and carcinogenesis or cancer cell death (*J Clin Invest* 2001, **108**:1541-1547).

"These results may explain the seemingly paradoxical carcinogenic and antitumor effects of arsenic", concluded Chou.

## References

1. Chou W-C, Hawkins AL, Barrett JF, Griffin CA, Dang CV: Arsenic inhibition of telomerase transcription leads to genetic instability. *J Clin Invest* 2001, 108:1541-1547., [<http://www.jci.org>]
2. Johns Hopkins University School of Medicine, [<http://www.hopkinsmedicine.org/medicalschoo/>]