

Given the relatively low sequence complexity needed to select specific RNA-binding peptides and the apparent ability to adopt different secondary structures, we speculate that arginine-rich peptides may have evolved early from a predominantly RNA-based world. Studies with HIV Rev and BIV Tat peptides<sup>12,19,20</sup> indicate that the RNA and peptide structures are both stabilized upon binding, suggesting that the ribonucleopeptide complex, rather than the individual components, may be viewed as a folding domain. Use of an RNA scaffold for peptide folding might have helped a transition to a protein-based world, before the evolution of hydrophobic protein interiors and sophisticated tertiary structures. □

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1. Rebar, E. J. & Pabo, C. O. *Science* **263**, 671–673 (1994).
2. Choo, Y. & Klug, A. *Proc. natn. Acad. Sci. U.S.A.* **91**, 11163–11167 (1994).
3. Jamieson, A. C., Kim, S. H. & Wells, J. A. *Biochemistry* **33**, 5689–5695 (1994).
4. Geierstanger, B. H., Mrksich, M., Dervan, P. B. & Wemmer, D. E. *Science* **266**, 646–650 (1994).
5. Lazinski, D., Grzadzilska, E. & Das, A. *Cell* **59**, 207–218 (1989).
6. Weeks, K. M. & Crothers, D. M. *Cell* **66**, 577–588 (1991).
7. Calnan, B. J., Tidor, B., Biancalana, S., Hudson, D. & Frankel, A. D. *Science* **252**, 1167–1171 (1991).
8. Churcher, M. J. *et al. J. molec. Biol.* **230**, 90–110 (1993).
9. Kjems, J., Calnan, B. J., Frankel, A. D. & Sharp, P. A. *EMBO J.* **11**, 1119–1129 (1992).
10. Tan, R., Chen, L., Buettner, J. A., Hudson, D. & Frankel, A. D. *Cell* **73**, 1031–1040 (1993).
11. Chen, L. & Frankel, A. D. *Biochemistry* **33**, 2708–2715 (1994).
12. Chen, L. & Frankel, A. D. *Proc. natn. Acad. Sci. U.S.A.* **92**, 5077–5081 (1995).
13. Tan, R. & Frankel, A. D. *Proc. natn. Acad. Sci. U.S.A.* **92**, 5282–5286 (1995).
14. Puglisi, J. D., Chen, L., Blanchard, S. & Frankel, A. D. *Science* **270**, 1200–1203 (1995).
15. Franklin, N. C. *J. molec. Biol.* **231**, 343–360 (1993).
16. Chattopadhyay, S., Garcia-Mena, J., DeVito, J., Wolska, K. & Das, A. *Proc. natn. Acad. Sci. U.S.A.* **92**, 4061–4065 (1995).
17. Mogridge, J., Mah, T.-F. & Greenblatt, J. *Genes Dev.* **9**, 2831–2844 (1995).
18. Jones, K. A. & Peterlin, B. M. *A. Rev. Biochem.* **63**, 717–743 (1994).

19. Tan, R. & Frankel, A. D. *Biochemistry* **33**, 14579–14585 (1994).
20. Battiste, J. L., Tan, R., Frankel, A. D. & Williamson, J. R. *Biochemistry* **33**, 2741–2747 (1994).
21. Greenblatt, J., Nodwell, J. R. & Mason, S. W. *Nature* **364**, 401–406 (1993).
22. Franklin, N. C. & Doelling, J. H. *J. Bact.* **171**, 2513–2522 (1989).
23. Sambrook, J., Fritsch, E. F. & Maniatis, T. *Molecular Cloning* (Cold Spring Harbor Laboratory Press, New York, 1989).

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## ERRATUM

### Structure and mechanism of DNA topoisomerase II

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A PRINTING error caused Figures 3a and 4a of this Article to be transposed. The legends are correct. □

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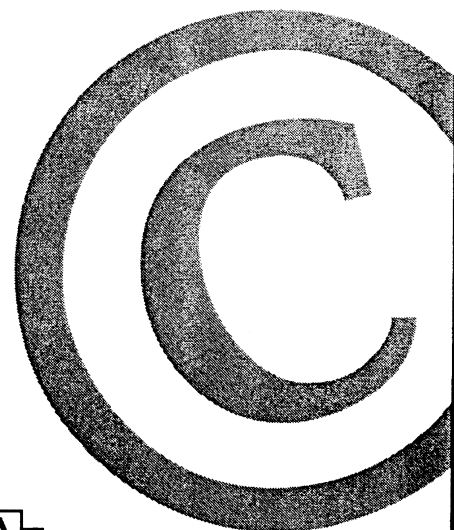
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