

FIG. 4 SWI/SNF introduces positive supercoils into relaxed plasmid DNA in the presence of bacterial topoisomerase I. *a*, SWI/SNF induces supercoiling. Closed relaxed plasmid DNA (lane 2) was incubated with the SWI/SNF complex and bacterial topoisomerase I (topo I; 3 units). Molar ratios of SWI/SNF to plasmid are indicated above each set of lanes. A ratio of 20:1 corresponds to 3 nM SWI/SNF. Addition of ATP to a subset of the reactions is indicated. Arrows to the right denote topology standards, lane 1 contains linear plasmid (form III), lane 3 contains supercoiled plasmid (form I) and some nicked circles (comigrate with form II, closed relaxed DNA). The bracket to the right denotes SWI/SNF-induced topoisomers. *b*, SWI/SNF introduces positive supercoils. Plasmid DNA was supercoiled with SWI/SNF (3 nM) and bacterial topo I as in *a*. DNA was purified (lane 6) and retreated with either bacterial topo I (3 units; lane 7), calf thymus topo I (3 units; lane 8), or calf thymus topo II (7 units; lane 9). Lanes 1–4 show control reactions in which negatively supercoiled plasmid DNA (lane 1) was incubated with each topoisomerase under conditions identical to those for lanes 7–9. Lane 5 shows the starting relaxed substrate DNA. Reactions that contained calf thymus topo II contained 1 mM ATP.

**METHODS.** Supercoiling reactions (20  $\mu$ l) contained 1 $\times$  supercoiling buffer (20 mM HEPES, pH 7.5, 7 mM MgCl<sub>2</sub>, 15 mM KCl, 0.5 mM DTT, 50  $\mu$ g per ml BSA), 50 ng pJH28, SWI/SNF, and topoisomerases where indicated. Reactions were incubated for 45 min at 30 °C, stopped with 80  $\mu$ l 1% SDS, 10 mM EDTA, 100  $\mu$ g ml<sup>-1</sup> proteinase K, 50  $\mu$ g ml<sup>-1</sup> tRNA, and incubated for 30 min at 37 °C. Samples were extracted with phenol/chloroform, ethanol-precipitated, and electrophoresed on 0.8% agarose gels without ethidium bromide and then Southern-blotted. DNA was purified and electrophoresed in the presence of chloroquine as described<sup>27</sup>. Blots were probed with pJH28 labelled with [ $\alpha$ -<sup>32</sup>P]dCTP by random priming. Plasmid pJH28 contains *SUC2* sequences from -1, 100 to +14 in plasmid pRS316.

## ERRATA

### Crystal structure of a G-protein $\beta\gamma$ dimer at 2.1 Å resolution

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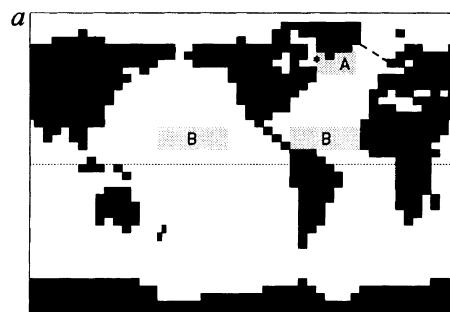
In this title, a typographical error caused the substitution of a subscripted 'A' for a hyphen in 'G-protein'. The correct title is given here. □

### Bifurcations of the Atlantic thermohaline circulation in response to changes in the hydrological cycle

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The shaded areas A and B of Fig. 1a of this Article were lost during printing. The correct figure is shown here. □



energy of DNA binding to change the helical twist, resulting in an overwinding of the DNA. Changes in helical twist may destabilize histone–DNA<sup>23</sup> as well as histone–histone interactions<sup>24</sup>, so the ability of the SWI/SNF complex to modulate both DNA structure and topology may be important in SWI/SNF-dependent disruption of nucleosome structure. □

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