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Author Correction

Testing pseudotopological and nontopological models for SMC-driven DNA loop extrusion against roadblock-traversal experiments (Scientific Reports, (2023), 13, 1, (8100), 10.1038/s41598-023-35359-2)

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Author Correction: Testing pseudotopological and nontopological models for SMC-driven DNA loop extrusion against roadblock-traversal experiments

Roman Barth, Biswajit Pradhan, Eugene Kim, Iain F. Davidson, Jaco van der Torre, Jan-Michael Peters & Cees Dekker

Correction to: Scientific Reports https://doi.org/10.1038/s41598-023-35359-2, published online 19 May 2023

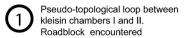
The original version of this Article contained an error in Figure 1b-1, where the fore- and background order of the strands "DNA" (in black) and "Brn1 Kleisin" (in green), were switched.

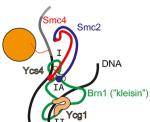
The original Figure 1 and accompanying legend appear below.

The original Article has been corrected.

loop 2 extruded after roadblock encounte

a Pseudotopological model

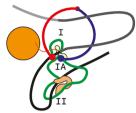




In contrast to the loop extrusion cycle without roadblock, according

to Shaltiel et al., roadblock passage

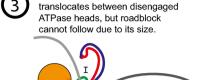
results in two loops which can grow and shrink up to the binding



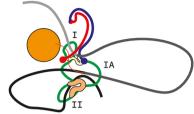
Second pseudo-topological loop

threaded between the SMC coiled

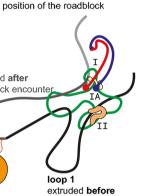
Conformational flexibility of the kleisin allows reconfiguration and re-binding of Ycs4 to the ATPase



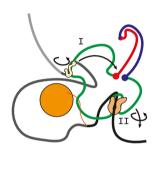
Tether between roadblock and DNA

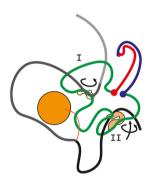


Tether can move into combined chambers I and IA upon dissocation of Ycs4 from Smc4 head.



roadblock encounter

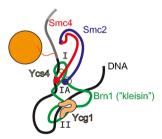


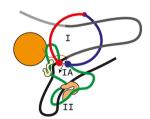


b Nontopological model

- Nontopological loop between kleisin chambers I and II. Roadblock encountered.
- The N-terminal frament of the kleisin opens a latch, allowing passage through chamber I. DNA and roadblock pass through disengaged ATPase heads (dashed arrow).

Sealing of the kleisin latch resets the extrusion cycle.





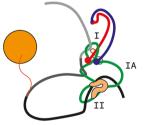


Figure 1. Description of the mechanism postulated by Shaltiel et al. for roadblock passage into an extruded loop on the DNA and a potential nontopological model. (a) The steps through the proposed DNA loop extrusion cycle are commented in more detail in steps 1-6 within the figure. Adapted from Ref. 11. (b) Potential nontopological model which is closely analogous to the pseudotopological model, but with a slight variation in the DNA-SMC topology which allows particle bypass.

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