Summary/abstract writing

Nature is a top ranking journal in the natural sciences. The editorial staff recommend submitted abstracts follow this structure:

…**a summary**, separate from the main text, of **up to 150 words**, which does **not** have references, and **does not** contain numbers, abbreviations, acronyms or measurements unless essential. It is **aimed at readers outside the discipline**. This summary contains a paragraph (2-3 sentences) of **basic-level introduction** to the field; a brief account of the **background and rationale** of the work; a statement of the **main conclusions** (introduced by the phrase 'Here we show' or its equivalent); and finally, **2-3 sentences putting the main findings into general context** so it is clear how the results described in the paper have moved the field forwards.

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How to construct a _Nature_ summary paragraph

basic introduction to the field, comprehensible to a scientist in any discipline (1-2 sentences).

more detailed background, *comprehensible to scientists in related disciplines (2-3 sentences)*

general problem being addressed by this particular study(1 sentence)

summary of main result (with the words "**here we show**" or their equivalent, in 1 sentence)

what the main result reveals in direct comparison to what was thought to be the case previously, or how the main result adds to previous knowledge (2-3 sentences)

results put into more general context (1-2 sentences)

broader perspective, *readily comprehensible to a scientist in any discipline, may be included if the editor considers that the accessibility of the paper is significantly enhanced by their inclusion. (2-3 sentences. Under these circumstances, the length of the paragraph can be up to 300 words. The above example is 190 words without the final section, and 250 words with it.*

During cell division, mitotic spindles are assembled by microtubule-based motor proteins[1, 2]. The bipolar organization of spindles is essential for proper segregation of chromosomes, and requires plus-end-directed homotetrameric motor proteins of the widely conserved kinesin-5 (BimC) family[3]. Hypotheses for bipolar spindle formation include the 'push−pull mitotic muscle' model, in which kinesin-5 and opposing motor proteins act between overlapping microtubules[2, 4, 5]. However, the precise roles of kinesin-5 during this process are unknown. Here we show that the vertebrate kinesin-5 Eg5 drives the sliding of microtubules depending on their relative orientation. We found in controlled *in vitro* assays that Eg5 has the remarkable capability of simultaneously moving at ~20 nm s^{-1} towards the plus-ends of each of the two microtubules it crosslinks. For anti-parallel microtubules, this results in relative sliding at ~40 nm s^{-1}, comparable to spindle pole separation rates *in vivo*[6]. Furthermore, we found that Eg5 can tether microtubule plus-ends, suggesting an additional microtubule-binding mode for Eg5. Our results demonstrate how members of the kinesin-5 family are likely to function in mitosis, pushing apart interpolar microtubules as well as recruiting microtubules into bundles that are subsequently polarized by relative sliding. We anticipate our assay to be a starting point for more sophisticated *in vitro* models of mitotic spindles. For example, the individual and combined action of multiple mitotic motors could be tested, including minus-end-directed motors opposing Eg5 motility. Furthermore, Eg5 inhibition is a major target of anti-cancer drug development, and a well-defined and quantitative assay for motor function will be relevant for such developments.