the proteasome interior? And to what extent are alternative approaches to accessing the activities of the proteasome exploited *in vivo*? The proteasome is a remarkable machine, and there is still much to learn.

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Ran in the spindle checkpoint: a new function for a versatile GTPase

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The small GTPase Ran has a well-established role in nucleocytoplasmic trafficking. In recent years, the repertoire of Ran has expanded to include regulation of spindle assembly, formation of the nuclear envelope and DNA replication. Now, new studies further extend the role of Ran to regulating the spindle checkpoint during mitosis.

Extensive studies in nuclear trafficking have shown that Ran acts as a molecular switch to regulate the assembly and disassembly of nuclear transport receptor–cargo complexes, depending on the guanine-nucleotide-bound state of Ran [1,2]. The nucleotide exchange factor RCC1 catalyzes formation of RanGTP, whereas the hydrolysis of RanGTP is stimulated by RanGAP1 and RanBP1. Because RCC1 is chromatin-bound whereas RanGAP1 and RanBP1 are cytoplasmic, the concentration of RanGTP is high in the nucleus. This distribution of RanGTP ensures the directionality of nuclear import and export during interphase (Figure 1).

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