

**Cover**

The first high-resolution structure of translation release complexes consisting of the 70S ribosome, mRNA, tRNA and the release factor bound to its cognate stop codon. For further details, see the article by Sabine Petry on pages 55–59.

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RESEARCH

- 5 *Sören Doose*
Trends in biological optical microscopy.
The 96th International Titisee Conference
Modern light microscopy techniques allow unprecedented insight into biological structures and processes with regard to resolution, sensitivity, specificity, speed of image acquisition and field of view. They can, for example, measure conformational changes of proteins or the movement of single motor proteins. Doose's report gives an overview of the latest developments in the field of optical microscopy and their biological applications.

SCIENCE

- 15 *Interview with Ulrich Schaible*
Tuberculosis – an old pandemic has made a forceful comeback
A third of the world's population is estimated to be infected with the tuberculosis bacterium. Of these, 5–10% develop active disease and become infectious, with multi- and extensive-drug-resistant bacterial strains now being a serious problem. Schaible describes the complex interplay between the intracellular tuberculosis bacterium and its human host, as well as current problems and new approaches for vaccination.

PROJECTS

- 19 Role of pacemaker (HCN) channels for the encoding of odour information • Mechanisms modulating asymmetric cell division in *C. elegans* embryos • Investigation of microRNA-

mediated mechanisms regulating gene expression • Structural and functional study of the INO80 chromatin-remodelling complex • Unravelling the molecular mechanisms that determine spindle position during asymmetric cell division • Function of the novel protein PICH in the spindle assembly checkpoint • Role of sumoylation in chromosome and nuclear organization • Structural and functional analysis of γ -secretase • The anaphase-promoting complex in synapse function, learning and memory • Structural basis of the tmRNA system for ribosome rescue • Epigenetic regulation of cellular senescence • Epigenetic reprogramming in mouse primordial germ cells •

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