



CONTENTS

## Cover

Pictogram of the consensus binding sequence of hepatocyte nuclear factor 1b (Tcf2) and TCF1. The transcription factor Tcf2 is involved in the control of cystic kidney disease genes, whose mutations are the most common genetic cause of chronic renal failure in humans. For further details, see the article by Andreas Reimann on pages 126–130.

**B.I.F. INTERNAL**

- 68** Particulars  
**69** Im Mittelpunkt steht der Mensch  
**135** Events, Imprint

**RESEARCH**

- 71** Andreas Wodarz  
**Polar expeditions. Cell polarity and asymmetric cell division in the fruit fly *Drosophila***  
*Asymmetric distribution of substances and structures within cells is often essential for the physiological function of a cell (e.g. neurons) or of tissue. It is also crucial to asymmetric cell division, one function of which is to generate neural progenitors and stem cells from the same mother cell. Wodarz highlights common genes and pathways between flies and man and discusses the multitude of processes in which cell polarity plays an important role.*

**SCIENCE**

- 76** Interview with Konrad Hochedlinger  
**It takes four to reprogramme adult cells**  
*In June 2007, three laboratories reported a major breakthrough in the stem-cell field: they generated embryonic stem cells using a novel approach that avoids the ethical, medical and logistic problems associated with the »classical Dolly technique« of nuclear transfer. B.I.F. fellow Konrad Hochedlinger, who heads one of the three laboratories, comments on the findings and explains their implications for therapy.*

**PROJECTS**

- 80** Genetic dissection of optokinetic circuitry in the zebrafish visual system • Regulation of axon guidance by microRNAs in neuronal growth cones • Rationalization of the molecular mechanism of human lysozyme systemic amyloidosis • Single-particle cryo-EM of the protein-conducting channel in the membrane

environment • Role of Toll receptors in olfactory targeting in *Drosophila melanogaster* • Regulation of cohesion establishment at the replication fork • Molecular mechanisms of T<sub>H</sub>17 cell differentiation and function • Anatomical origins and molecular regulation of progenitor cells in the embryonic and adult pancreas • Imaging of synaptic release from hypothalamic output neurons that regulate food intake • Neuronal polarity: molecular dissection of centrosome-regulated axon outgrowth • Linking cholesterol sensing at the surface with its synthesis in the ER • The functional interplay between Hsp110 proteins and Hsp70 chaperones • New insights into the survival strategies of the malaria parasite *Plasmodium* • The role of myosin chaperone Unc-45b in muscle stress response • Biochemical and biophysical approaches towards a molecular definition of heterochromatin • Investigating synaptic specificity in *C. elegans* •

**RESULTS**

- 107** Henrik Bringmann  
**Cytokinesis furrow positioning in *Caenorhabditis elegans***  
**111** Robert Gauss  
**The HRD ligase – coupling ER-quality control and protein degradation**  
**114** Irmgard Hofmann  
**Characterization of the human ARL4 and ARL8 families of GTPases**  
**118** Karim Jerbi  
**Cerebral representation of hand speed as revealed by magneto-encephalography**  
**122** Frank Josten  
**Hedgehog-dependent cell movements require gap junctional communication**  
**126** Andreas Reimann  
**The Tcf2-dependent transcriptional network in polycystic kidney disease**  
**130** Fabrizia Stavru  
**Embedding the nuclear pore complex into the nuclear envelope**