

COVER

How do neuron populations in the brain control movement? This question is crucial to, for example, the development of brain-machine interfaces or so-called neuronal motor prostheses. Carsten Mehring combined neurophysiological experiments and mathematical modelling to decipher the dynamics of the underlying neuronal network. The cover shows local field potentials (LFPs) measured during movement of a monkey's arm (depicted in colour code and modified). For further details, see the article on pages 273-277.

CONTENTS

B.I.F. INTERNAL

- 220 Particulars
221 Wechsel im Kuratorium
299 Events, Imprint

RESEARCH

- 223 *Markus Bachschmid, Volker Ullrich*
Redox signalling in endothelial cells. Novel mechanisms explaining endothelium function and dysfunction in health, disease and aging
The basic process of endothelial dysfunction can largely be explained by increased production of the superoxide anion (O_2^-). The authors examine its interaction with nitric oxide (NO) and prostacyclin (PGI₂), the main regulators in the intact endothelium, and find new mechanisms by which endothelial activation and dysfunction can be explained.
- 231 *Marco Peters, Karl Peter Giese*
Discovering novel subtypes of long-term memory. Calcium/calmodulin-regulated kinases, CREB and the formation of hippocampal long-term memory
Peters and Giese review key findings showing that the activation of the cAMP responsive element binding (CREB) protein is a key event in the formation of long-term memory. Furthermore, they provide evidence that differential use of CaM kinase kinase- β to activate CREB identifies two distinct types of hippocampus-dependent long-term memory.

PROJECTS

- 240 Role of p160 co-regulators TIF2 and SRC1 in metabolism and energy homeostasis • Signal intensity determines cell fate in developing T lymphocytes • Compartment-specific regulation of lipid signals by the phosphoinositide phosphatase Sac1 • Can the course of Rett syndrome be modified? • Functional characterization of two hyperpolarization-activated, cyclic nucleotide-gated ion channels • Chemotactic steering of cells in chemi-

cal gradients • K_{ATP} channel-independent secretory activity of pancreatic β -cells in tissue slice preparation • Notch signalling in peripheral T cell differentiation and regulatory T cell development • The role of chemokines in the initiation of immune responses • Role of PPAR γ agonists and HDAC inhibitors in prostate cancer • How do cells resolve conflicting protein targeting information? • Microevolution of a cell-cell signalling network

RESULTS

- 258 *Gregor Bucher*
Analysis of tomato spotted wilt virus nucleocapsid assembly
- 262 *Oliver Grimm*
A mechanism leading to loss of mesodermal competence during vertebrate development
- 266 *Achim Heinrich*
Manipulating the erythroid lineage in living mice
- 270 *Marius Lemberg*
Intramembrane proteolysis of the hepatitis C virus core protein
- 273 *Carsten Mehring*
Neuronal encoding of movement in motor cortical networks
- 277 *Jan Pielage*
Analysis of neuron-glia interactions in *Drosophila*
- 281 *Sandrine Thuret*
Identification and characterization of genes expressed by the midbrain dopaminergic neurons
- 286 *Silke Wiesner*
Structural analysis of the WW domains of the splicing factor Prp40
- 290 **AUTHOR INDEX VOLUME 18 (2003)**
293 **SUBJECT INDEX VOLUME 18 (2003)**