CONTENTS of the Transfection of the Transfecti

Mirus

14 November 2013 / Vol 503 / Issue No 7475

THIS WEEK

EDITORIALS

165 AFRICA

Precautionary measures

Major campaigns targeting AIDS and malaria require proper monitoring

165 GENOMICS

Data deadline

The NIH's proposed revamp of datasharing rules urgently needs input

166 POLICY

Keep asking

Government drug policies should be based on evidence, not prejudice



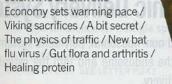
WORLD VIEW

167 Review by quality not quantity for better policy William J Sutherland

Global assessments need to sharpen up the way they collate and review evidence

RESEARCH HIGHLIGHTS

168 SELECTIONS FROM THE SCIENTIFIC LITERATURE



SEVEN DAYS

170 THE NEWS IN BRIEF

Typhoon devastates the Philippines /
Record high for greenhouse gases /
Scant evidence of poisoning for Yasser
Arafat or Pablo Neruda / Personal
Genome Project expands

CAREERS

301 FIELDWORK

The great outdoors

Combine environmental research with a spot of peace and quiet

303 COLUMN

Fast-tracked talent

Conor O'Carroll

Ireland's approach to 'scientific visas' is a model others would do well to follow

NEWS IN FOCUS











173 POLICY

Big science takes budgetary hit at NIH

174 CLIMATE CHANGE

Warsaw talks aim to smooth the path to new climate treaty

177 PARTICLE PHYSICS

Physicists dream of giant collider to succeed LHC

178 PLANETARY SCIENCE

NASA's Mars mission prepares for lift-off

179 POLITICS

US social scientists gear up for fight over grant restrictions

180 PUBLISHING

Preprint server for life sciences opens for business

FEATURES

182 AIDS PREVENTION

Africa's circumcision challenge

A bid to circumcise 20 million men is raising questions over true efficacy



MAI ARIA

The big push

Older drugs are being pressed into service to try to quash malaria infections PAGE 186

COMMENT

189 PARASITIC INFECTIONS

Time to tackle cryptosporidiosis

Boris Striepen

No more neglect for *Cryptosporidium*, a major threat to child health across Africa and Asia

191 GLOBAL CHANGE

Ecology must evolve

Georgina Mace

Environmental research needs to be rebooted to tackle today's problems

BOOKS & ARTS

SYNTHETIC BIOLOGY

The second creation

Anthony King gets to grips with the heady scent of synthesis PAGE 196



194 HUMAN BEHAVIOUR

Bending minds, building medicine Andrew Robinson

195 BOOKS IN BRIEF

197 ORNITHOLOGY

World wide wings Stuart Pimm

CORRESPONDENCE

198 Impact metrics / Government shutdowns / Scientific stories

FUTURES

306 Bottled up Anatoly Belilovsky

CONTENTS

14 November 2013 / Vol 503 / Issue No 7475

RESEARCH

NEW ONLINE

199 Papers published this week at nature.com

NEWS & VIEWS

200 APPLIED PHYSICS

A cascade laser's random walk An electrically pumped mid-infrared random laser Hui Cao & Stafford W Sheehan

201 BIOCHEMISTRY

Metal ghosts in the splicing machine Small nuclear RNAs coordinate catalytic metal ions in the spliceosome Scott A Strobel SEE ARTICLE P.229

202 SOLAR SYSTEM

Russian skyfall

Analysis of the Chelyabinsk asteroid impact
Natalia Artemieva
SEE LETTERS P.235 & P.238

204 STEM CELLS

Differentiated cells in a back-up role
Differentiated stomach and lung cells
can act like stem cells
Tushar J Desai & Mark A Krasnow
SEE ARTICLE P.218

205 QUANTUM PHYSICS

The right ambience for a single spin Long lifetime for a single spin adsorbed on a metal surface Michael E Flatté SEE LETTER P.242

206 BIODIVERSITY

The ecological deficit Small-mammal extinctions after habitat fragmentation Andrew Gonzalez

207 HIV

Antibodies advance the search for a cure
Broadly neutralizing mAbs suppress viraemia in macaques
Louis J Picker & Steven G Deeks

SEE ARTICLE P.224 & LETTER P.277

REVIEW

E of

em

209 PHYSICS Sound and heat revolutions in phononics M Maldovan

ARTICLES

218 STEM CELLS Dedifferentiation of committed epithelial cells into stem



cells in vivo PR Tata et al. SEE N&V P.204

- 224 HIV Therapeutic efficacy of potent neutralizing HIV-1-specific monoclonal antibodies in SHIV-infected rhesus monkeys D H Barouch et al. SEE N&V P.207
- 229 BIOCHEMISTRY RNA catalyses nuclear pre-mRNA splicing S M Fica et al. SEE N&V P.201

LETTERS

- 235 PLANETARY SCIENCE The trajectory, structure and origin of the Chelyabinsk asteroidal impactor J Borovička et al. SEE N&V P.202
- 238 PLANETARY SCIENCE A 500-kiloton airburst over Chelyabinsk and an enhanced hazard from small impactors P G Brown et al. SEE N&V P.202
- 242 PHYSICS Stabilizing the magnetic moment of single holmium atoms by symmetry

 T Miyamachi et al. SEE N&V P.205

- 247 SELF-ASSEMBLY Guided hierarchical co-assembly of soft patchy nanoparticles A H Gröschel et al.
- 252 EARTH SCIENCES Evidence for high salinity of Early Cretaceous sea water from the Chesapeake Bay crater W E Sanford, M W Doughten, T B Coplen, A G Hunt & T D Bullen
- 257 PALAEONTOLOGY The earliest known holometabolous insects

 A Nel et al.
- 262 NEUROSCIENCE Feature detection and orientation tuning in the *Drosophila* central complex

 J D Seelig & V Jayaraman
- 267 NEUROSCIENCE SHANK3 and IGF1 restore synaptic deficits in neurons from 22q13 deletion syndrome patients

 A Shcheglovitov et al.
- 272 IMMUNOLOGY Paneth cells as a site of origin for intestinal inflammation

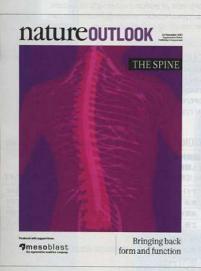
 TEAdolph et al.
- immunotherapy of macaques chronically infected with SHIV suppresses viraemia M Shingai et al. SEE N&V P.207
- 281 CELL BIOLOGY Inhibitory signalling to the Arp2/3 complex steers cell migration / Dang et al.
- 285 DEVELOPMENTAL BIOLOGY Directional tissue migration through a self-generated chemokine gradient E Donà et al.
- 290 MOLECULAR BIOLOGY A high-resolution map of the three-dimensional chromatin interactome in human cells

 F Jin et al.
- 295 PHARMACOLOGY Structural basis for modulation of a G-protein-coupled receptor by allosteric drugs R O Dror et al.
- 300 CORRIGENDUM Stereoinversion of tertiary alcohols to tertiary-alkyl isonitriles and amines SV Pronin, CA Reiher & RA Shenvi

OUTLOOK

Supplement to 14 November 2013 / Vol 503 / Issue No 7475

THE SPINE



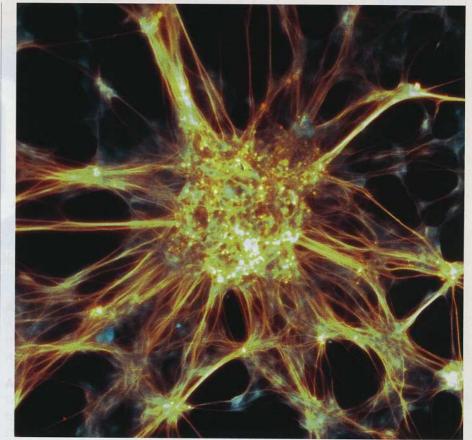
Turn to page 198

- S1 EDITORIAL Medical imaging Mike May
- Sensation and loss
 Charting form and function

Charting form and function through the body's nerve centre

- S4 STEM CELLS
 - A time to heal
 Will early stem-cell therapies be
 allowed to reach their full potential?
- S7 REGENERATIVE MEDICINE
 Rebuilding the backbone
- Researchers grow replacement parts for the spine
- S10 DRUG DEVELOPMENT
 - Chemical brace

Coaxing neurons to reconnect and repair damaged spinal cord



Can a dose of neural stem cells restore function to damaged neural circuits in the spine (page S4)?

- S13 PERSPECTIVE
 - Protecting the neck

Let technology take the brunt of the force, says Peter Cripton

- S14 EMERGENCY MEDICINE
 - The need for speed

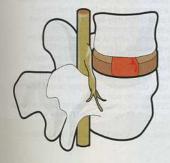
Immediate care is crucial to a patient's chances of preserving spine function

- S16 TECHNOLOGY
 - **Mobility machines**

Mind-controlled robotic exoskeletons take their first steps

- S18 PERSPECTIVE
 - Avoiding injury

Wise up to hazards and avoid accidental injury, says Sara Klaas





NATURE.COM

 The journal Spinal Cord takes a look at the prevention and management of spinal cord injuries around the world in a recent web focus:

nature.com/fg6ty9

COLLECTION

Visit our online edition,
which includes an exclusive
selection of research and review
articles on repairing damaged
spinal cords following injury:
go.mature.com/uzcueo