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Daniel B Metcalfe [SEE LETTER P.600](#)

#### 567 MICROBIOLOGY

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Limited transfer of antibiotic-resistance genes from soil bacteria

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#### 568 MATERIALS SCIENCE

##### Energy storage wrapped up

Coaxial cables that both transmit and store electricity

Yury Gogotsi

#### 570 DEVELOPMENTAL GENETICS

##### Female silkworms have the sex factor

A female-specific piRNA determines sex in *Bombyx mori*

František Marec [SEE LETTER P.633](#)

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##### The magnetic proton

A record measurement of the proton's magnetic moment

V Alan Kostelecký [SEE LETTER P.596](#)

#### 572 CARDIOVASCULAR BIOLOGY

##### Switched at birth

Exposure to oxygen induces cardiomyocyte cell-cycle withdrawal

Katherine E Yutzey

#### 573 IMMUNOLOGY

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Germinal-centre B-cell divisions programmed by amount of antigen presented

David M Tarlinton [SEE LETTER P.637](#)

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M-S Kim et al.

#### 582 PROTEOMICS Mass-spectrometry-based draft of the human proteome

M Wilhelm et al.

#### 588 STRUCTURAL BIOLOGY Structural basis of the non-coding RNA RsmZ acting as

### ON THE COVER

## The human proteome

Two groups present mass spectrometry-based analyses of human tissues, body fluids and cells mapping the large majority of the human proteome. And we report on a third major proteomics project, the antibody-based Human Protein Atlas programme.

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### a protein sponge

O Duss et al.

### LETTERS

#### 593 ASTROPHYSICS Three regimes of extrasolar planet radius inferred from host star metallicities

L A Buchhave et al.

#### 596 QUANTUM PHYSICS Direct high-precision measurement of the magnetic moment of the proton

A Mooser et al. [SEE N&V P.571](#)

#### 600 CLIMATE SCIENCE Contribution of semi-arid ecosystems to interannual variability of the global carbon cycle

B Poulter et al. [SEE N&V P.566](#)

#### 604 CLIMATE SCIENCE Storm-induced sea-ice breakup and the implications for ice extent

A L Kohout, M J M Williams, S M Dean & M H Meylan

#### 608 EVOLUTION A Palaeozoic shark with osteichthyan-like branchial arches

A Pradel, J G Maissey, P Tafforeau, R H Mapes & J Mallatt

#### 612 MICROBIAL ECOLOGY Bacterial phylogeny structures soil resistomes across habitats

K J Forsberg et al. [SEE N&V P.567](#)

#### 617 NEUROSCIENCE Epidermal Merkel cells are mechanosensory cells that tune mammalian touch receptors

S Maksimovic et al.

#### 622 NEUROSCIENCE Piezo2 is required for Merkel-cell mechanotransduction

S-H Woo et al.

#### 627 NEUROSCIENCE Scalable control of mounting and attack by Esr1<sup>+</sup> neurons in the ventromedial hypothalamus

H Lee et al.

#### 633 IMMUNOLOGY A single female-specific piRNA is the primary determiner of sex in the silkworm

T Kiuchi et al. [SEE N&V P.570](#)

#### 637 CANCER Clonal selection in the germinal centre by regulated proliferation and hypermutation

A D Gitlin, Z Shulman & M C Nussenzweig [SEE N&V P.573](#)

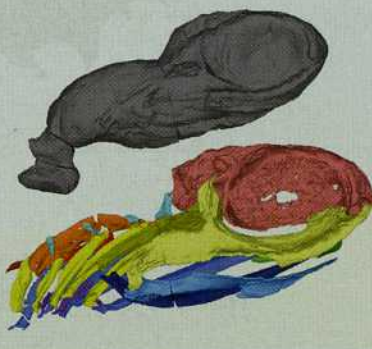
#### 641 CARDIOVASCULAR DISEASE Dichloroacetate prevents restenosis in preclinical animal models of vessel injury

T Deuse et al.

### EVOLUTION

## New faces

They may look it, but today's sharks are not 'living fossils'. [PAGE 608](#)



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