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### NEW ONLINE

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### NEWS & VIEWS

#### 472 CELL BIOLOGY

**Choreography of protein synthesis**  
Coordinated regulation of mitochondrial and cytosolic translation  
Martin Ott [SEE ARTICLE P.499](#)

#### 473 ASTROPHYSICS

**How black holes restrain old galaxies**  
Gas stirring by supermassive black holes in old galaxies  
Marc Sarzi [SEE LETTER P.504](#)

#### 474 CELL BIOLOGY

**Killer enzymes tethered**  
Mitochondrial tethering limits caspase activity in spermatids  
Shigekazu Nagata

#### 476 EVOLUTION

**The bigger, the better**  
Resolutions for the big-sperm paradox  
Jennifer R Gardiner [SEE LETTER P.535](#)

#### 477 DEPRESSION

**Ketamine steps out of the darkness**  
A ketamine metabolite mediates antidepressant-like effects in mice  
Roberto Malinow [SEE ARTICLE P.481](#)

#### 478 ATMOSPHERIC SCIENCE

**Unexpected player in particle formation**  
A class of organic compounds that affects aerosol formation and growth  
Chris Cappa [SEE LETTERS P.521 & P.527](#)

### ARTICLES

481 **NEUROSCIENCE** NMDAR inhibition-independent antidepressant actions of ketamine metabolites  
P Zanos et al. [SEE N&V P.477](#)

487 **STEM CELLS** Tracing haematopoietic stem cell formation at single-cell resolution  
F Zhou et al.

493 **CANCER** Carcinoma-astrocyte gap junctions promote brain metastasis by cGAMP transfer  
Q Chen et al.

499 **CELL BIOLOGY** Synchronized mitochondrial and cytosolic translation programs

### ON THE COVER

## Compare the meerkats

In meerkats a dominant breeding pair monopolizes reproduction in each group, while their offspring are reared by all group members. A new study shows that subordinates of both sexes respond to experimentally induced increases in the growth of same-sex rivals by raising their own growth rate and food intake. [PAGE 532](#)



M T Couvillion, I C Soto, G Shipkova & L S Churchman [SEE N&V P.472](#)

### LETTERS

504 **ASTROPHYSICS** Suppressing star formation in quiescent galaxies with supermassive black hole winds  
E Cheung et al. [SEE N&V P.473](#)

509 **PLANETARY SCIENCE** A resonant chain of four transiting, sub-Neptune planets  
S M Mills et al.

513 **CONDENSED-MATTER PHYSICS** A high-temperature ferromagnetic topological insulating phase by proximity coupling  
F Katmis et al.

517 **CHEMICAL PHYSICS** Continuous probing of cold complex molecules with infrared frequency comb spectroscopy  
B Spaun et al.

521 **ATMOSPHERIC SCIENCE** Ion-induced nucleation of pure biogenic particles  
J Kirkby et al. [SEE N&V P.478](#)

527 **ATMOSPHERIC SCIENCE** The role of low-volatility organic compounds in initial particle growth in the atmosphere

J Tröstl et al. [SEE N&V P.478](#)

532 **ANIMAL BEHAVIOUR** Competitive growth in a cooperative mammal  
E Huchard, S English, M B V Bell, N Thavarajah & T Clutton-Brock

535 **EVOLUTIONARY THEORY** How sexual selection can drive the evolution of costly sperm ornamentation  
S Lüpold et al. [SEE N&V P.476](#)

539 **NEUROSCIENCE** Genome-wide association study identifies 74 loci associated with educational attainment  
A Okbay et al.

543 **MICROBIOME** Culturing of 'unculturable' human microbiota reveals novel taxa and extensive sporulation  
H P Browne et al.

547 **CANCER** Redirecting abiraterone metabolism to fine-tune prostate cancer anti-androgen therapy  
Z Li et al.

552 **IMMUNOLOGY** Access of protective antiviral antibody to neuronal tissues requires CD4 T-cell help  
N Iijima & A Iwasaki

557 **STRUCTURAL BIOLOGY** Structural insights into inhibition of lipid I production in bacterial cell wall synthesis  
B C Chung et al.

561 **STRUCTURAL BIOLOGY** Crystal structure of the human sterol transporter ABCG5/ABCG8  
J-Y Lee et al.



NATHAN THAVARAJAH