19 July 2012 / Vol 487 / Issue No 7407

LET THE GAMES BEGIN

EDITORIAL

272 London calling
Towards the games of tomorrow

FEATURES

287 PERFORMANCE ENHANCEMENT
Superhuman athletes
How far can science push prowess?

290 SPORTS SCIENCE

Team scienceBehind the scenes at the Olympics

COMMENT

295 EVOLUTION

Run for your life

Timothy Noakes & Michael Spedding Humans were born to run

297 GENETICS

Genetically enhanced Olympics are coming

Juan Enriquez & Steve Gullans
Discrimination against the elite is one
way to level the playing field

THIS WEEK

EDITORIALS

271 POLICY

A different agenda

US politics threaten social sciences

271 CANADA

Death of evidence

Scientists protest 'political' cuts

WORLD VIEW

273 Wildfires ignite debate on global warming

Max A Moritz

Climate change is getting closer to home

RESEARCH HIGHLIGHTS

274 SELECTIONS FROM THE

SCIENTIFIC LITERATURE

Adiponectin link to depression/ Human traits of *Australopithecus* / Bacteria on film / Two sides to p53

SEVEN DAYS

276 THE NEWS IN BRIEF

FDA accused of spying on employees / UK launches bid for research integrity / Fifth moon for Pluto

CAREERS

395 RISKY RESEARCH

The sky's the limit

High-risk research has its rewards

397 CAREER BRIEFS

NEWS IN FOCUS

279 CONSERVATION

A world without Lonesome George

281 PARTICLE PHYSICS

Higgs data offer scant support for theories beyond the standard model

282 GENOMICS

Gene-expression libraries offer unprecedented access to disease data

203 HEALTH

FDA approves drug for HIV prevention

284 ASTROPHYSICS

Partners flock to support Large Synoptic Survey Telescope

285 PUBLISHING

Europe backs plans for open access

286 PUBLIC HEALTH

Florida gets cold feet over modified mosquitoes

ADVERTISEMENT

EPPENDORF AWARD FOR YOUNG EUROPEAN INVESTIGATORS



Presented in partnership with Nature

Turn to the pages preceding page 271 for an interview with 2012 winner, Elizabeth Murchison.

COMMENT

293 VIROLOGY

Towards a cure for HIV

Steven G Deeks & Françoise Barré-Sinoussi An international agenda designed to find a cure — if there is one

BOOKS & ARTS

298 EPIGENETICS

Different under the skin Michael G Sargent

299 BOOKS IN BRIEF

300 PATHOLOGY

The dead reborn

Alison Abbott

301 Q&A

Superpower sleuth

Bruce Miller, head writer for the Alphas science-fiction series, does his research

CORRESPONDENCE

302 Shades of open access / Carbonneutral Cost Rica / Antibiotic resistance

FUTURES 400 White lies

400 White lies Grace Tang



CONTENTS

19 July 2012 / Vol 487 / Issue No 7407

RESEARCH

NEW ONLINE

303 Papers published this week at nature.com

NEWS & VIEWS

304 PRENATAL DIAGNOSTICS

Fetal genes in mother's blood Non-invasive fetal genome sequencing by haplotype counting Diana W Bianchi SEE ARTICLE P.320

305 BIOGEOCHEMISTRY

The great iron dump

Carbon deposited to the deep ocean in an iron fertilization experiment Ken O Buesseler SEE ARTICLE P.313

306 CARDIOLOGY

Bad matters made worse

Monocytosis following heart attack promotes atherosclerosis Ira Tabas SEE ARTICLE P.325

308 CHEMICAL BIOLOGY

Greasy tags for protein removal

Non-covalent binding of hydrophobic ligands causes protein degradation Taavi K Neklesa & Craig M Crews

309 NUCLEAR PHYSICS

Nucleons come together Clustering in atomic nuclei

Martin Freer SEE LETTER P.341

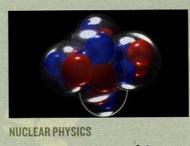
310 EVOLUTIONARY PHYSIOLOGY

A bone for all seasons

Annual growth lines are common in the bones of ruminants

Kevin Padian SEE LETTER P.358





Star quality

The clustering interactions involved in stellar nucleosynthesis. PAGES 309 & 341

ARTICLES

- 313 EARTH SCIENCE Deep carbon export from a Southern Ocean iron-fertilized diatom bloom
 - V Smetacek et al. SEE N&V P.305
- 320 GENOMICS Non-invasive prenatal measurement of the fetal genome H C Fan et al. SEE N&V P.304
- 325 MEDICAL RESEARCH Myocardial infarction accelerates atherosclerosis P Dutta et al. SEE N&V P.306
- 330 CANCER Comprehensive molecular characterization of human colon and rectal cancer The Cancer Genome Atlas Network

LETTERS

- 338 ASTRONOMY High velocity dispersion in a rare grand-design spiral galaxy at redshift z = 2.18

 DR Law et al.
- 341 PHYSICS How atomic nuclei cluster J-P Ebran, E Khan, T Nikšić & D Vretenar SEE N&V P.309
- 345 MATERIALS Terahertz-field-induced insulator-to-metal transition in vanadium dioxide metamaterial M Liu et al.
- 349 CHEMISTRY Dodecagonal tiling in mesoporous silica C Xiao, N Fujita, K Miyasaka, Y Sakamoto
- & O Terasaki
- 354 EARTH SCIENCE Solid-liquid iron partitioning in Earth's deep mantle D Andrault et al.

- 358 PALAEONTOLOGY Seasonal bone growth and physiology in endotherms shed light on dinosaur physiology M Köhler, N Marín-Moratalla, X Jordana & R Aanes SEE N&V P.310
- 362 ECOLOGY Widespread adoption of Bt cotton and insecticide decrease promotes biocontrol services Y Lu, K Wu, Y Jiang, Y Guo & N Desneux
- 366 EVOLUTION Ecological opportunity and sexual selection together predict adaptive radiation C E Wagner, L J Harmon & O Seehausen
- 370 EVOLUTION Proto-genes and de novo gene birth
 A-R Carvunis et al.
- 375 PARASITOLOGY Analysis of Plasmodium falciparum diversity in natural infections by deep sequencing M Manske et al.
- 380 CANCER SHARP1 suppresses breast cancer metastasis by promoting degradation of hypoxia-inducible factors M Montagner et al.
- 385 VIROLOGY Structure of the immature retroviral capsid at 8 Å resolution by cryo-electron microscopy

 TAM Bharat et al.
- 390 BIOCHEMISTRY Heterogeneous pathways and timing of factor departure during translation initiation A Tsai et al.

