

natureINDIA

Special Annual Volume 2014

YEARLY COMPENDIUM OF SCIENCE IN INDIA

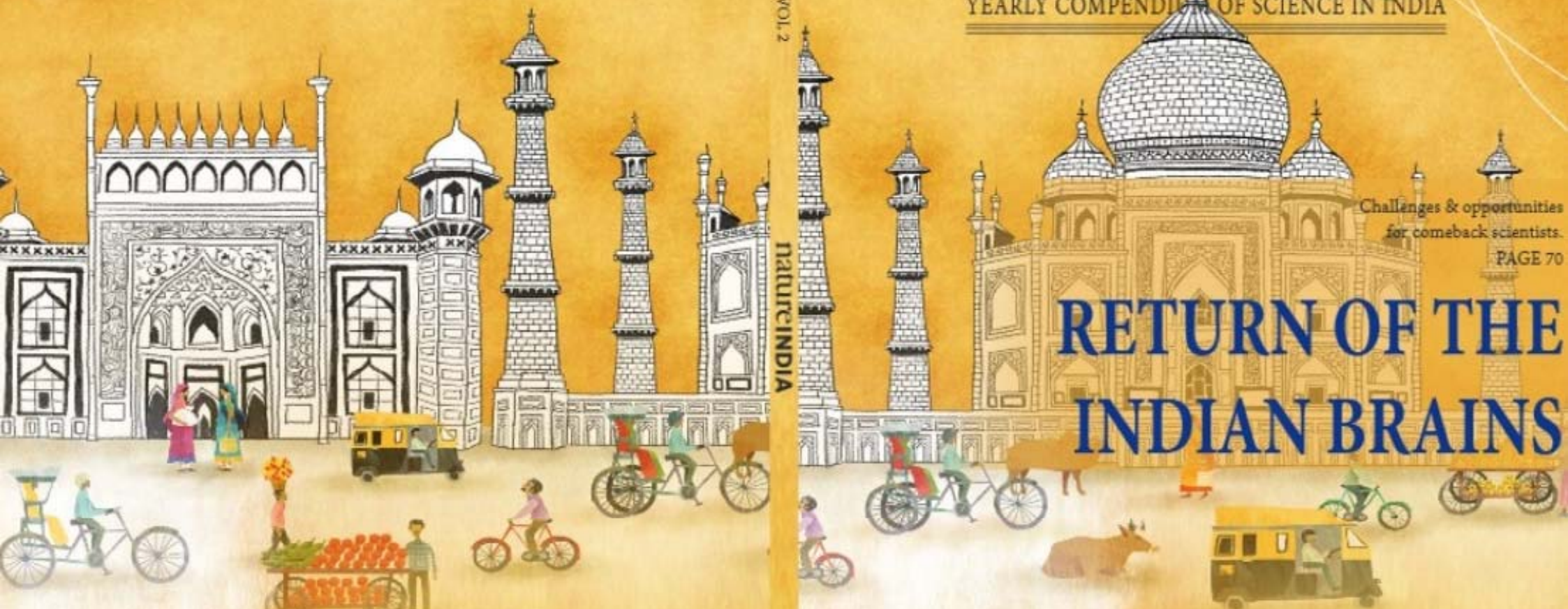
AUGUST 2015 | VOL. 2

natureINDIA

Challenges & opportunities
for comeback scientists.

PAGE 70


RETURN OF THE INDIAN BRAINS



natureINDIA

3A, 5th Floor, DLF Corporate Park,
Phase III, Gurgaon- 122002, Haryana, India
Email: npginia@nature.com

[facebook.com/npginia](https://www.facebook.com/npginia)

nature publishing group 

[@NatureInd](https://twitter.com/NatureInd)

FEATURES
**FOREIGN
SCIENTISTS**
Trickling in
PAGE 18

NEWS & VIEWS
**TABLETOP
PHYSICS**
Rewriting the rules
PAGE 34

RESEARCH HIGHLIGHTS
**ELECTRIC SILK
COCOONS**
Making power
PAGE 85

nature.com/natureindia

August 2015

Vol. 2

Supported by



CONTENTS

March 2014 | Vol 1

IN THIS ISSUE

EDITORIAL

FEATURES

- 5 The smelly world of tiger pheromones
- 6 Springs, not glaciers, fighting back climate change in eastern Himalayas
- 8 What is India's Mars mission looking at?
- 10 Wheat genome opens up new possibilities
- 14 India's biosecurity regulations face criticism
- 15 Criminalisation of gays barrier to HIV response: Lewin
- 16 India's biodiversity hotspots face climate change challenges
- 18 Foreigners in the pursuit of science in India
- 20 The legal battle over field trials of GM crops

NEWS & VIEWS

- 23 Gene target for diabetes
- 24 Black carbon, dust discolouring Taj Mahal
- 25 What turns fear into paranoia?



ON THE COVER

RETURN OF THE INDIAN BRAINS

Challenges and opportunities for comeback scientists. pg 70

Cover picture: An illustration showing some prominent movements of India and a slice of Indian life
© Ivory Inc./Alamy

- 26 Himalayas losing prized spice to climate change, poor science
- 28 Songs more effective than words for special children
- 29 Ozone killing enough crops to feed millions of poor
- 29 Radio waves predict earthquakes, unveil secrets of ionosphere
- 30 The inaudible identities of Western Ghat bats
- 31 Novel stem cells to regenerate pancreas
- 33 Low oxygen triggers massive bloom outbreak in Arabian Sea
- 34 Tabletop experiment corrects long-standing optics error
- 35 India places historic probe in Mars orbit
- 36 Injectable-oral vaccine combo could be key to polio eradication
- 37 Wildfire soot variety upsets warming estimates

- 36 New vaccine to fight cholera
- 37 Indian roots of malaria parasite
- 38 Indian scientists lead mapping of human proteome



- 41 Boats that journey through blood
- 42 New tools to solve mysteries of human origins, crimes
- 43 North east India gets microbial diversity database
- 44 Scientists identify epilepsy risk gene
- 44 One gene for many butterfly disguises
- 46 Unproven stem cell therapy banned
- 47 'Ayurgenomics' unravel new rheumatoid arthritis genes
- 48 Simple, cheap way to make silicon nanowires
- 49 Listening to the call of an earless purple frog
- 50 Real-time TB sensor could revolutionise treatment
- 51 Termites produce what semiconductor industry needs
- 52 Extra-terrestrial solar event triggered Uttarakhand cloudburst
- 53 Optical sensor to diagnose, cure jaundice

- 54 How India's large mammals endured changing climates
- 55 Coral reefs recover from bleaching, not fish



- 57 India bets on DNA-based healthcare
- 58 Radio waves predict earthquakes, unveil secrets of ionosphere
- 59 New cancer institute to boost research
- 63 Geographic hotspots where novel viruses could evolve

CONFERENCES

- 65 Phytochemicals offer new clues for breast cancer treatment
- 67 Genetic profiling, technology to minimise human-elephant conflicts
- 69 Robust biosafety policy needed to protect Indian lab workers
- 70 Return of the Indian brains

NATURE INDIA PHOTO CONTEST

- 74 Astronomy meets engineering
- 74 Ecological Sciences in India
- 75 Let there be light



- 75 The Indian *jugaad*
- 76 Wherever you go...we follow!
- 76 Bio-light for better tomorrow
- 77 Hybrid happiness

RESEARCH HIGHLIGHTS

79 PHYSICAL SCIENCES

- Sensor for detecting medullary thyroid cancer
- Suitability of binary system for testing general relativity
- Secrets of disease-causing amyloids unveiled
- 80 Graphene-based biochip for diagnosing heart attacks
- High surface sodium may rewrite lunar history



- 81 Herb nanoparticles aid blood vessel formation
- Hydrogel to print bone tissue
- 82 Optical sensor for heart disease

- Sexual rivalry between plasmids unlocked
- Solar radiation shapes Indian monsoon rainfall
- 83 Magnetic nanoemulsions make glucose sensor
- Nanotube-based scaffold for growing muscle tissue
- 84 Barbecued meat gives clean chit to nano safety
- Versatile semiconducting material

Pigeonpea powder to make nano antibacterials

- 85 Alzheimer's causing amyloid beta demystified
- Power from silk cocoons
- Nanorods sniff out liquefied petroleum gas
- 86 UV stars tell how Milky Way evolved
- Desert dust aerosol affects Indian monsoon
- Nano-bullets to kill HIV
- 87 New blood glucose sensor
- Sensor for measuring molecular mass
- Glowing nanorods for security ink
- 87 BIOLOGICAL SCIENCES
- Genome of nasty crop pest sequenced
- 88 Hydrogel to fight graft rejection
- Protein clue into rice seed development gene
- Quick, economic tool for drug discovery
- 89 Pomegranate for HCV cure
- New gene mutations linked to spasticity
- Skin tanning mechanism unravelled



- 90 Surrogate fish moms and dads
- Promising new antimalarial
- Heat treatment for diabetes
- 91 Genetic mutations behind cardiomyopathy
- Goa's marine pollution shows up in snail gene damage
- 92 Grandmotherly care in dogs
- Low antibiotic concentration makes bacteria resistant quicker