



[HOME](#) | [NEWS](#) | [TRAVEL](#) | [ART & STYLE](#) | [COMPENDIUM](#) | [SC BLOG](#)

[Physics](#) | [Chemistry](#) | [Geology and palaeontology](#) | [Biology](#) | [Environment](#) | [Astronomy](#) | [Health](#) | [Technology](#) | [— In pictures](#) | [— InMotion](#)

[Google Custom Search](#)

GO

Where am I? > [Home](#) > [News](#) > [Health](#)

Tags: [artificial](#), [gastropods](#), [membrane](#), [nacre](#)

A research work on molluscs nacre opens new doors for its possible use in biomedicine

Science Centric | 13 February 2009 10:00 GMT —

50 Hotels in Granada

Book your hotel in Granada online. Find your hotel on a city map!

www.booking.com/Hotels-Granada

AmScope Microscope, 2000+

Stereo, Zoom, Digital, Compound & Inspection

Microscopes 888-950-2888

www.amscope.com

Science Park - London 1hr

Prestigious offices, lab space and land designated for development

www.science-park.co.uk

Granada Center Granada

Great offers for Granada Book online now.

www.Hotels.com



Ads by Google

Researchers from the University of Granada, the Spanish National Research Council (CSIC) and the University of Aveiro (Portugal) have studied for the first time nacre's growing mechanism of gastropods, a previous step for the artificial reproduction of this material in laboratories which could make possible its use in biomedicine, with applications such as the regeneration of human bones.

This pioneer new work has been recently published in the renowned journal PNAS, and its authors are Antonio Checa, Professor of the department of Stratigraphy and Palaeontology of the University of Granada; Julian Cartwright, researcher of the Andalusian Institute of Earth Sciences (CSIC-UGR), and Marc-Georg Willinger (University of Aveiro, Portugal).

Many molluscs present an iridescent nacre layer on the internal surface of their shells, which lends them an enormous strength against fractures. Oddly, although molluscs have been producing nacre for million years, men had not been able to reproduce it artificially. Apart from their beauty - this is the material pearls are made of-, scientists have also done research into nacre due to its biomedical applications and its excellent biomechanic properties. If it was possible to reproduce this natural compost in an artificial way, it would have multiple and relevant applications.

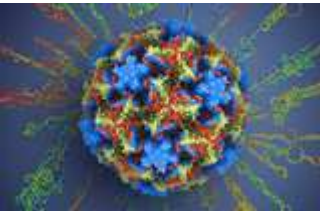
The authors of the work have analysed gastropods' nacre in detail (pleurotomariidae, turbos, trochus, abalones and others). Such nacre grows forming block towers, as piles of coins, unlike bivalves (nuculas, mussels, nacras, pearl oysters), which grow just like terraces of tablets. Nacre is made up of blocks of aragonite separated by membranes of polysaccharides and proteins, just like bricks and mortar in a wall.

The scientist studied gastropods' nacre in detail, revealing that it grows in terraces because it is limited by a membrane (superficial membrane) which covers and protects it from sea water when the animal goes into its shell. Such superficial membrane must carry out different tasks in order to permit the production of nacre and therefore it is 'a wonderfully complex structure,' according to the authors of this work. This article has showed how the superficial membrane organises nacre in towers and how mineral blocks are connected through a central column.

Source: [Universidad de Granada](#)



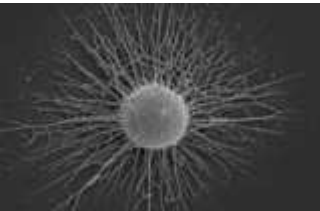
DON'T MISS —



[Sequences capture the code of the common cold](#) — [12 Feb] — In an effort to confront our most familiar malady, scientists have deciphered the instruction manual for the common cold....



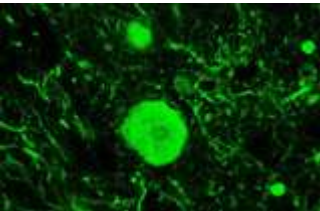
[Researchers discover metabolite linked to aggressive prostate cancer](#) — [11 Feb] — Researchers from the University of Michigan Comprehensive Cancer Centre have identified a panel of small molecules, or metabolites,...



[Scientists discover how deadly fungus protects itself](#) — [4 Feb] — Researchers at Albert Einstein College of Medicine of Yeshiva University have discovered how a deadly microbe evades the...



[Exercise critical to recovery after knee replacement](#) — [3 Feb] — It may be uncomfortable at first, but doing exercises to strengthen your quadriceps after you've had knee replacement surgery...



These are gastropods' nacre towers. (c) Universidad de Granada



— [Advertise here](#)

LATEST

MOST E-MAILED

ARCHIVE

Scientists prove graphene's edge structure affects electronic properties
Chemists offer new hydrogen purification method
Common gene variants increase risk of hypertension, may lead to new therapies
What's feeding cancer cells?
Study finds behavioural link between insomnia and tension-type headaches
Cosmologist Paul Davies explores notion of 'alien' life on Earth
Artificial cells, simple model for complex structure
Nanoparticle toxicity doesn't get wacky at the smallest sizes
Surprising results: Virtual games players stick close to home
Mixed population provides insights into human genetic makeup
Biofuels boom could fuel rainforest destruction
Climate change likely to be more devastating than experts predicted

[More](#) recent stories...

Cumulative radiation exposure shows increased cancer risk for emergency department patients
Dye-coated glass to channel energy into solar cells
Intestinal bacteria promote - and prevent! - inflammatory bowel disease
Scientists discover how rheumatoid arthritis causes bone loss
The upside to allergies: Cancer prevention
Protein on 'speed' linked to ADHD
Study links seismic slip and tremor, with implications for subduction zone
Fish scales show ocean fate of Atlantic salmon
Common bronchodilator linked to increased deaths
Robots designed to save lives of construction workers
High caffeine intake linked to hallucination proneness
Mast cells play a role in assisting immune system to combat tularaemia