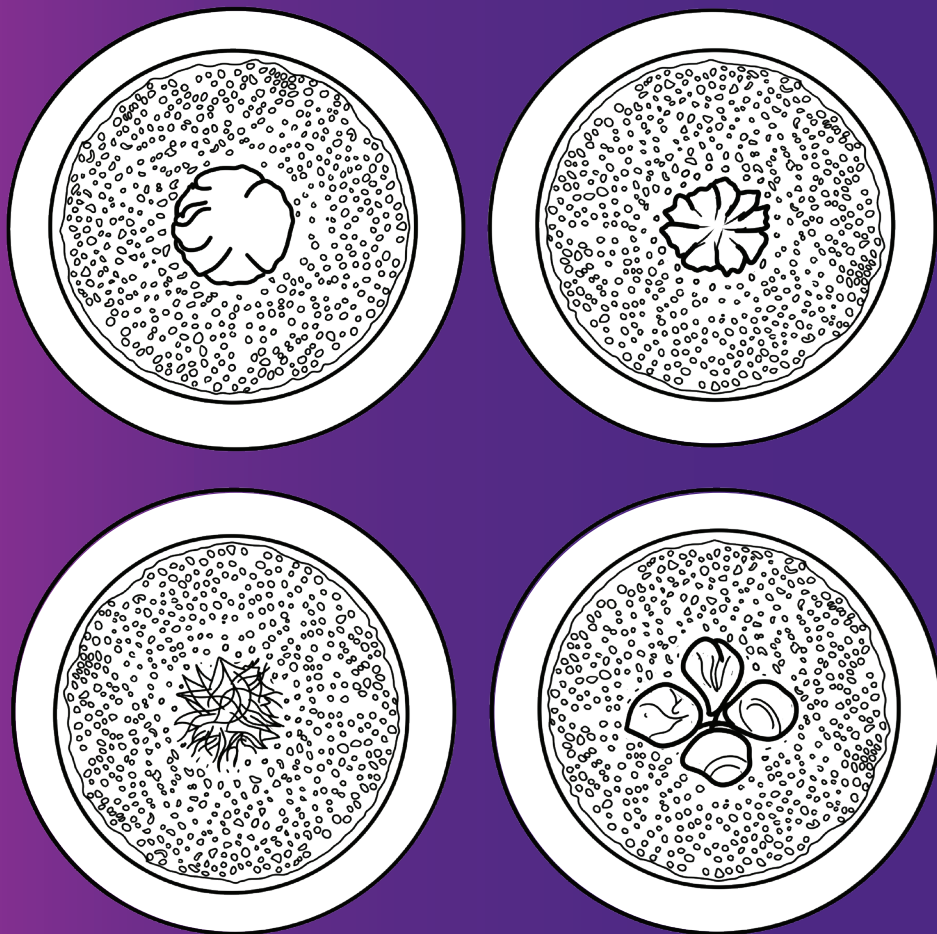


Colouring at the nanoscale



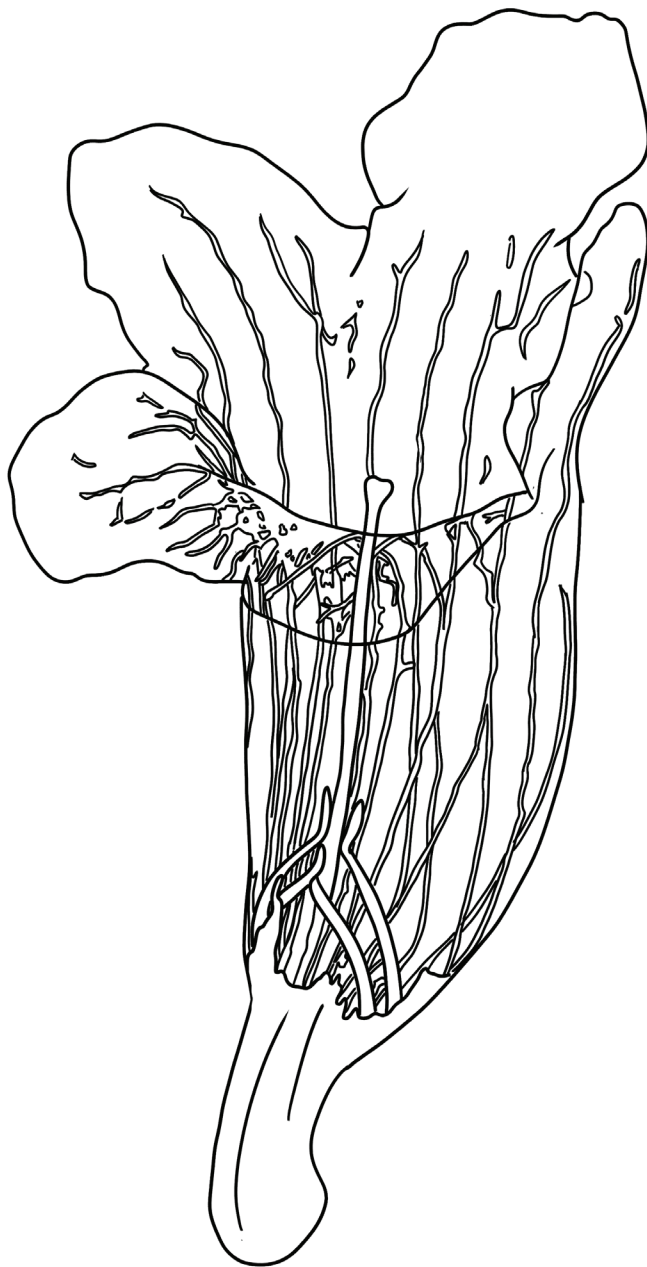
Research shows that colouring in can be an effective way to reduce anxiety, and perhaps even increase mindfulness.

Here at AIBN, we think it's also a fun way to explore the wonders of the microscale and nanoscale worlds. So, grab your colouring pencils and markers and join us as we shrink down and take you on a remarkable journey.

You'll see the inner workings of animals, tiny brain organoids unique formations of metal-organic frameworks, an alien landscape, as well as stunning close up views of stem cells, nanomaterials and more. As you colour these in we hope you'll see how detailed, fascinating and, indeed, beautiful the hidden world of very small things can be.

Nanoleaves, due to their unique properties such as high surface area and structural benefits, can significantly enhance the performance of electrode materials in fuel cells and zinc-air batteries.

Captured by Ruijing (Sophie) Xin.



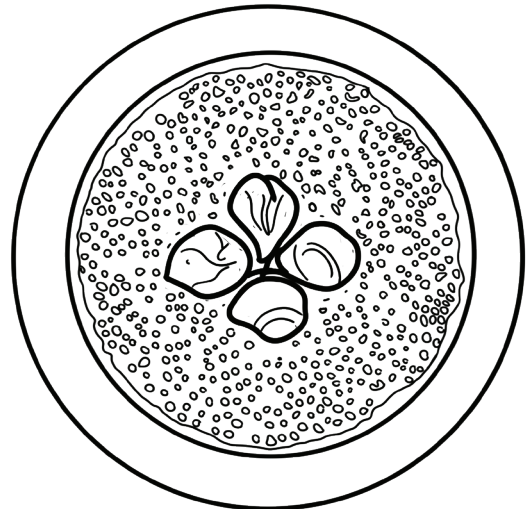
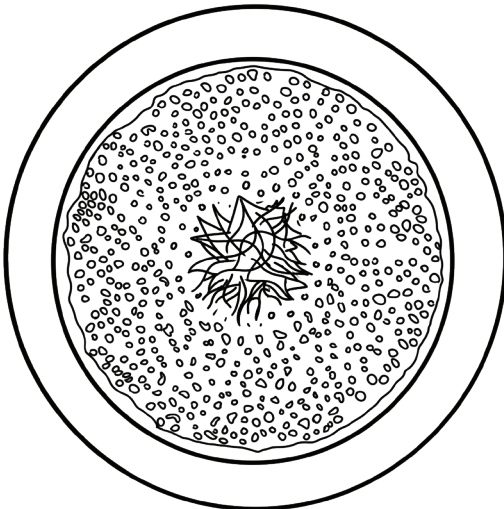
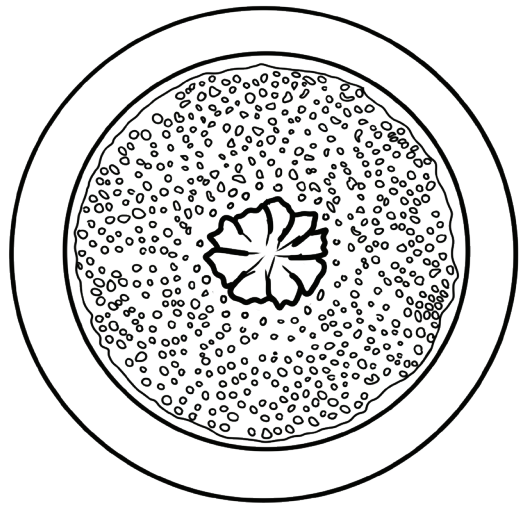
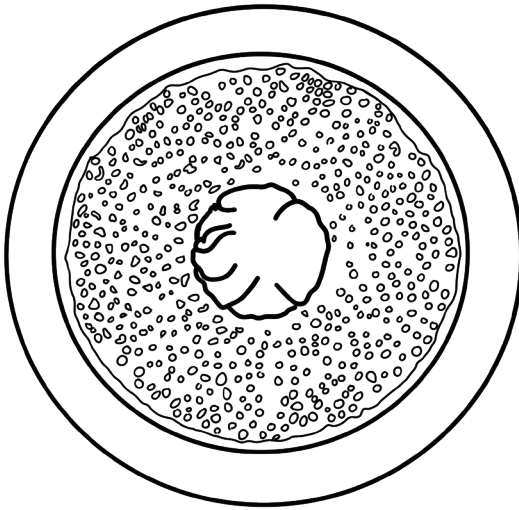
Jacaranda flowers are a common sight at The University of Queensland's leafy St Lucia campus. Here's what happens when you put one inside a big x-ray.
Captured by Gary Cowin



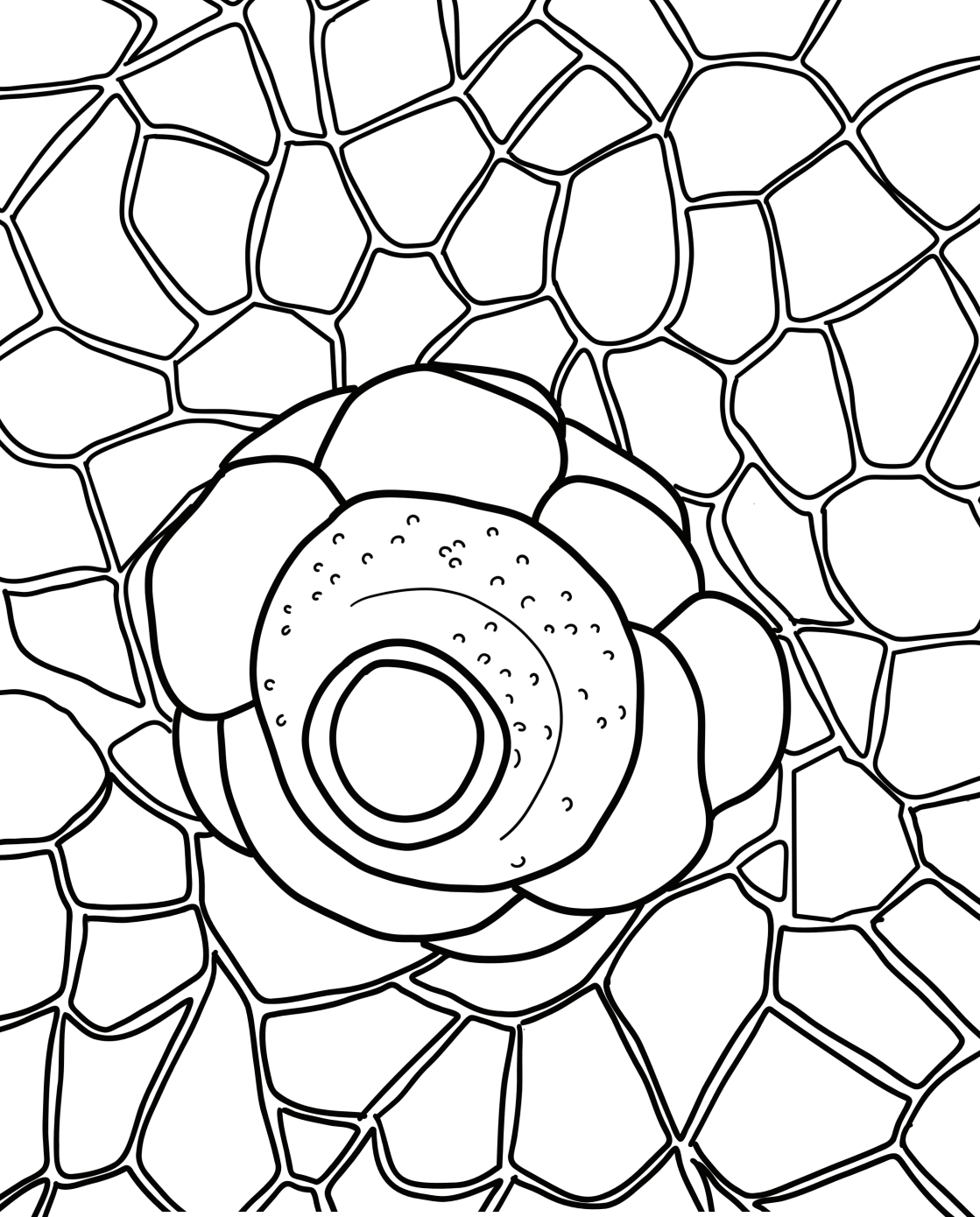
Scientists use magnetic resonance microscopy as a non-invasive MRI method to visualise internal organs. This spiky looking specimen is actually a rat kidney. Captured by Gary Cowin



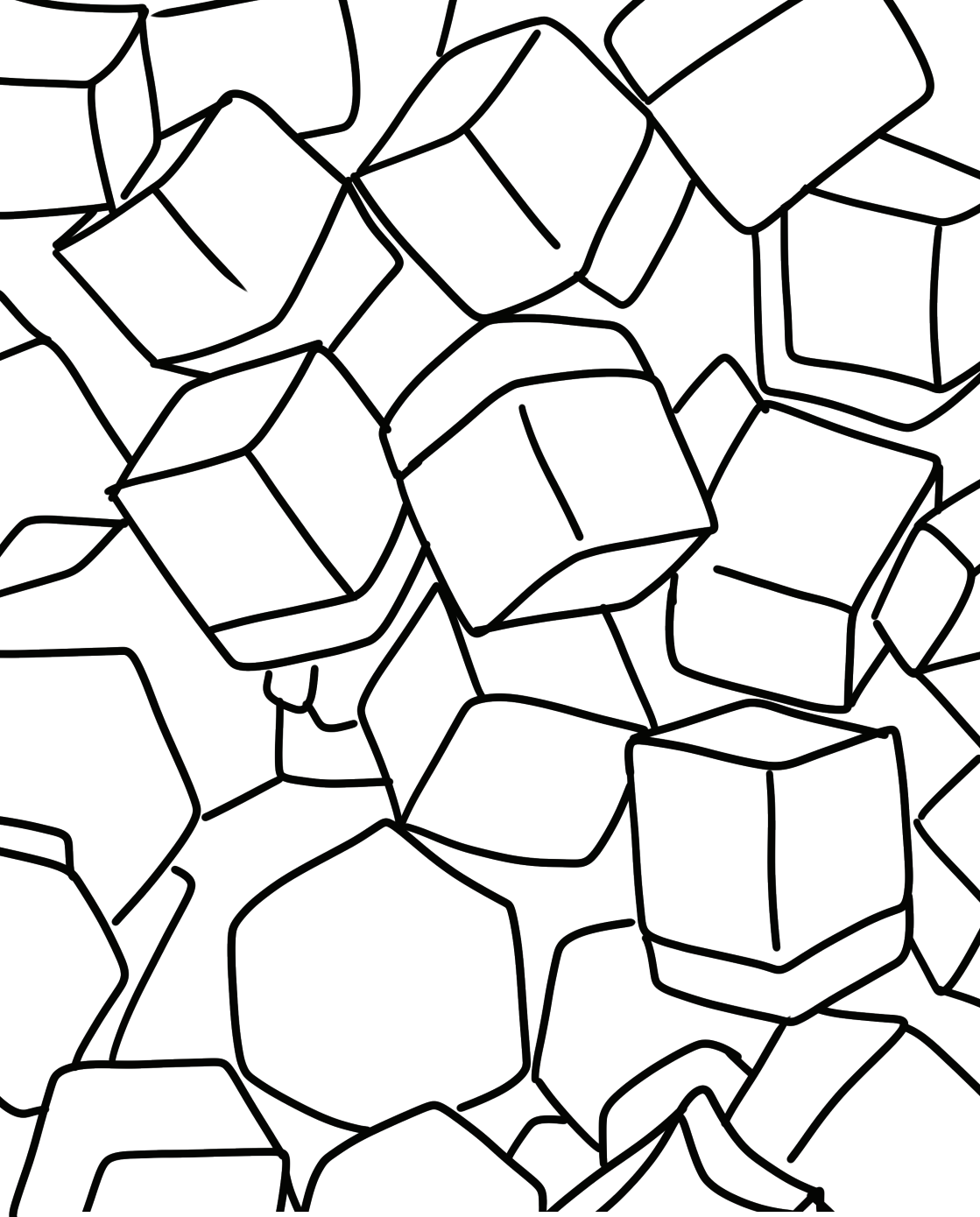
A cerebral snapshot of a synthetically grown brain organoid. This mini organ replica is smaller than a lentil and perfectly represents the intricate connections of the developing human brain. Captured by Sean Morrison.



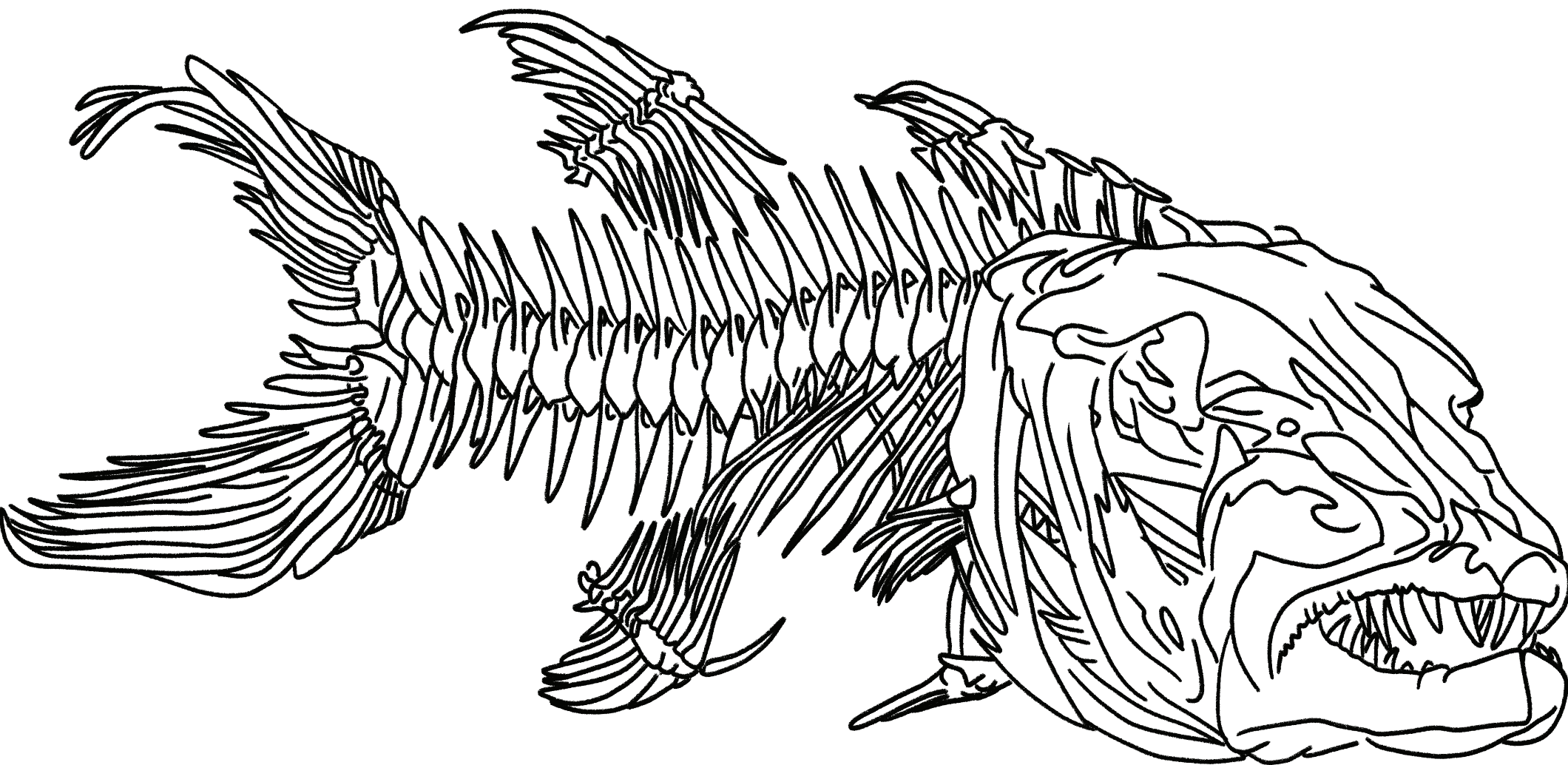
Under the microscope, we can get a front-row seat to the various stages of embryo development. These slides have been digitally augmented and arranged by computers. Captured by Larry Cai



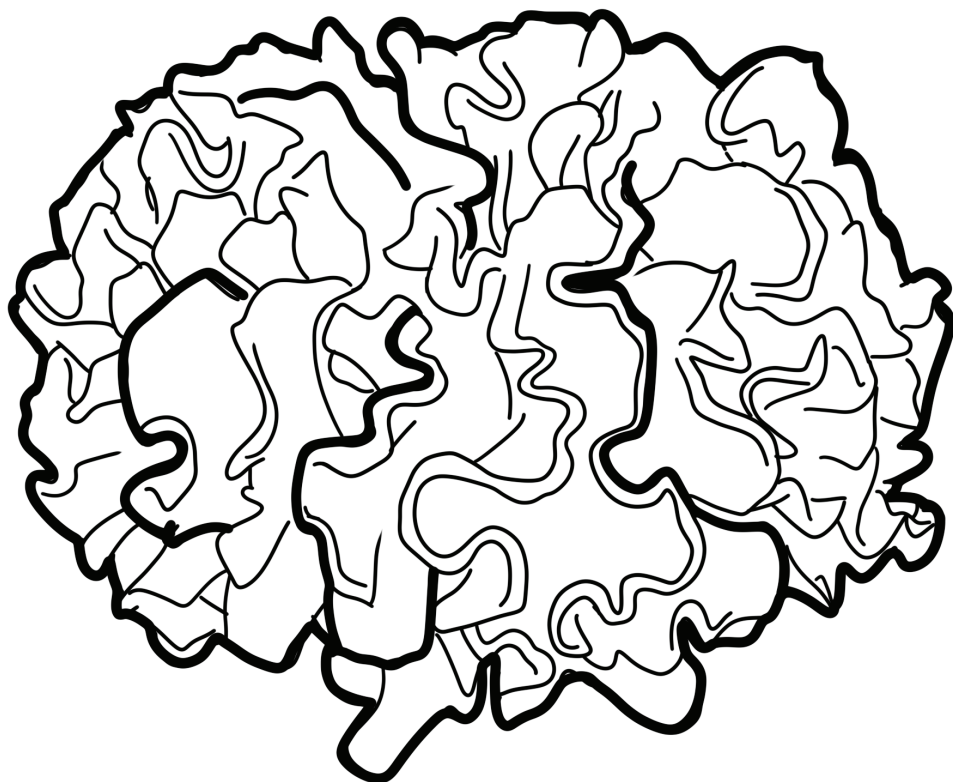
It could be an eyeball, it could be a flower. It's actually the upper surface of a cucumber leaf as it appears under something called a scanning electron microscope. Captured by Shangxu Jiang



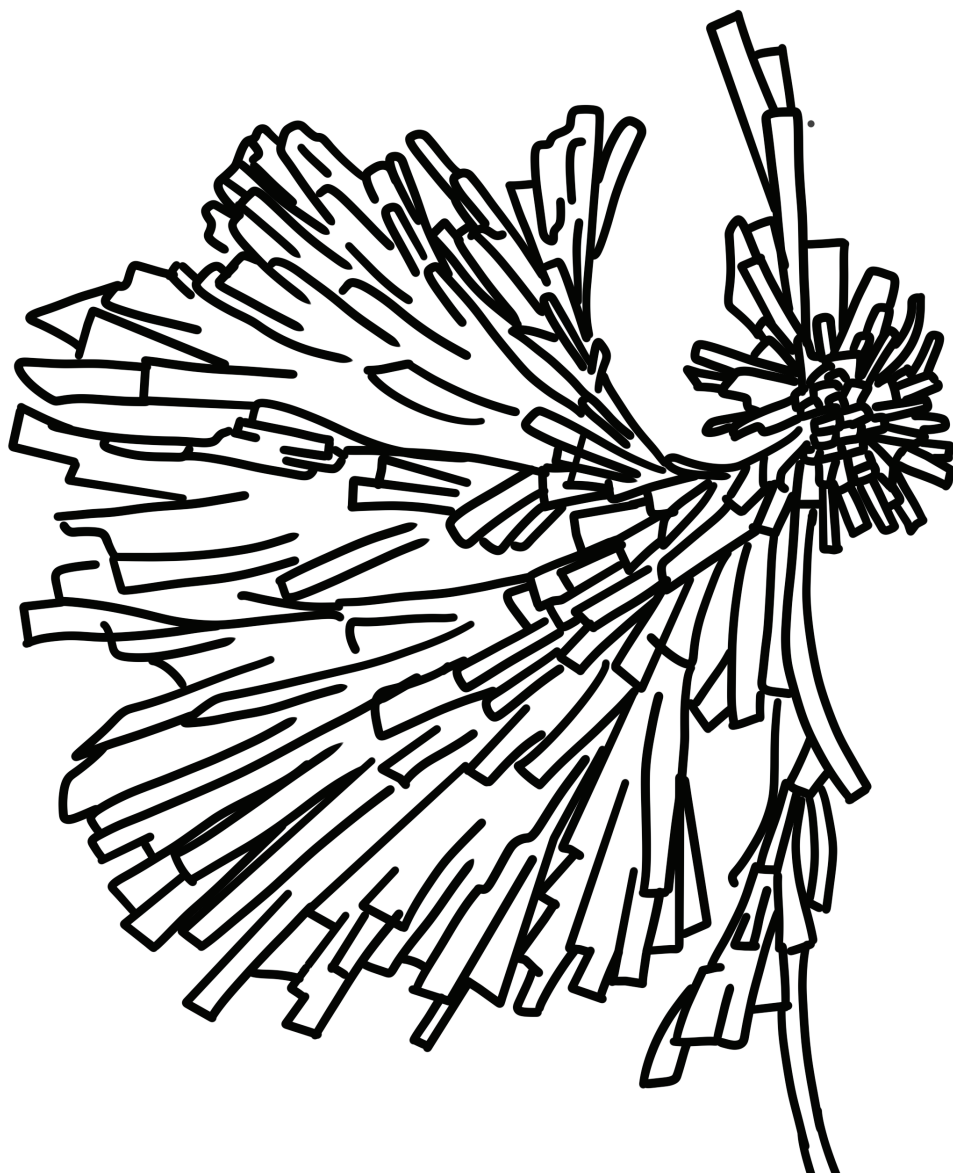
Here we have an image of some zeolitic imidazolate framework-8 rhombic dodecahedron particles. The technical term is 'science candies'. Captured by Valentino Kaneti



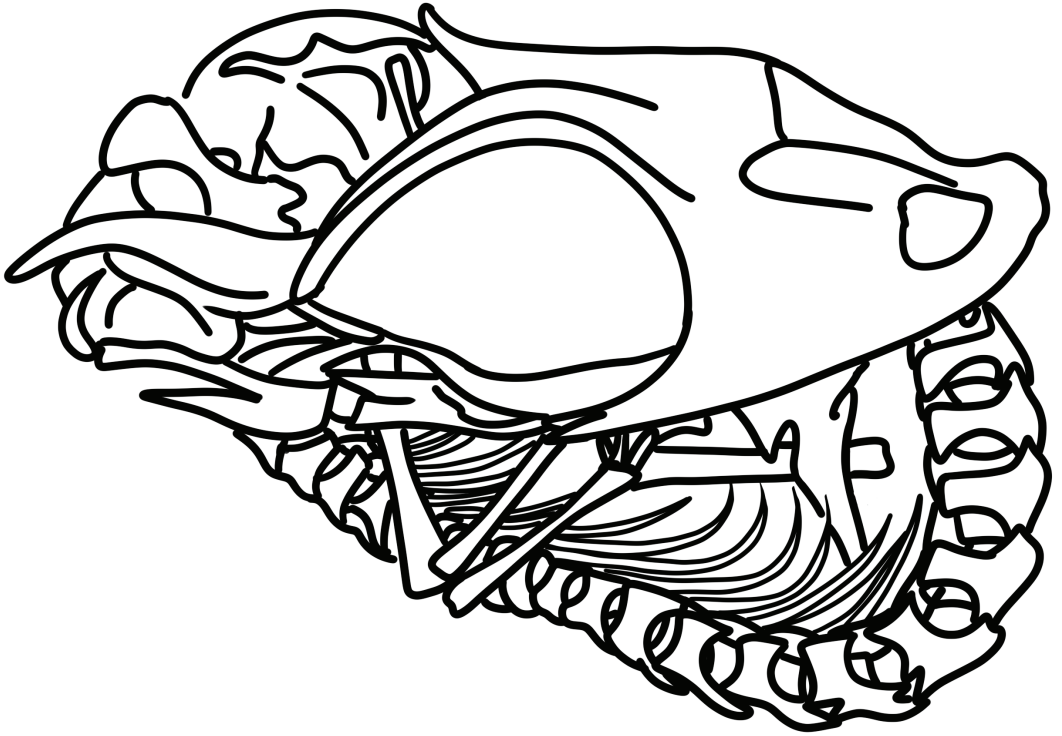
Oooh, baracuda! Researchers at AIBN's centre for advanced imaging captured the inside of this fishy friend using a CT machine. Captured by Karine Mardon



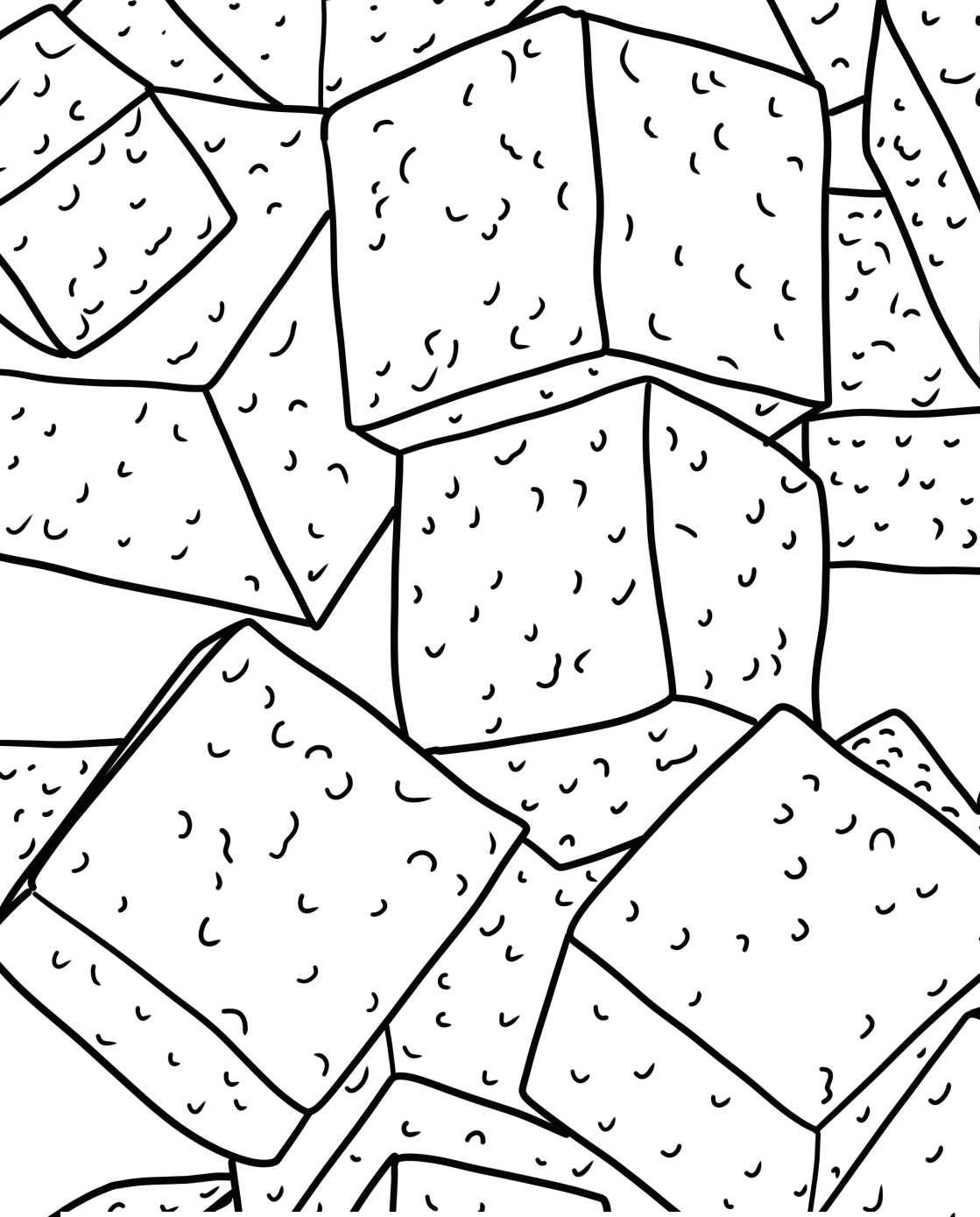
These cabbage-like nickel phosphate particles have been synthesised by a solvothermal process. Not suitable for Chiko Roll filler.
Captured by Valentino Kaneti



These carbon-based metal-organic framework nanorods have gradually decomposed and aggregated in a water solution, finally forming elegant radial crystals. Captured by Ping Cheng

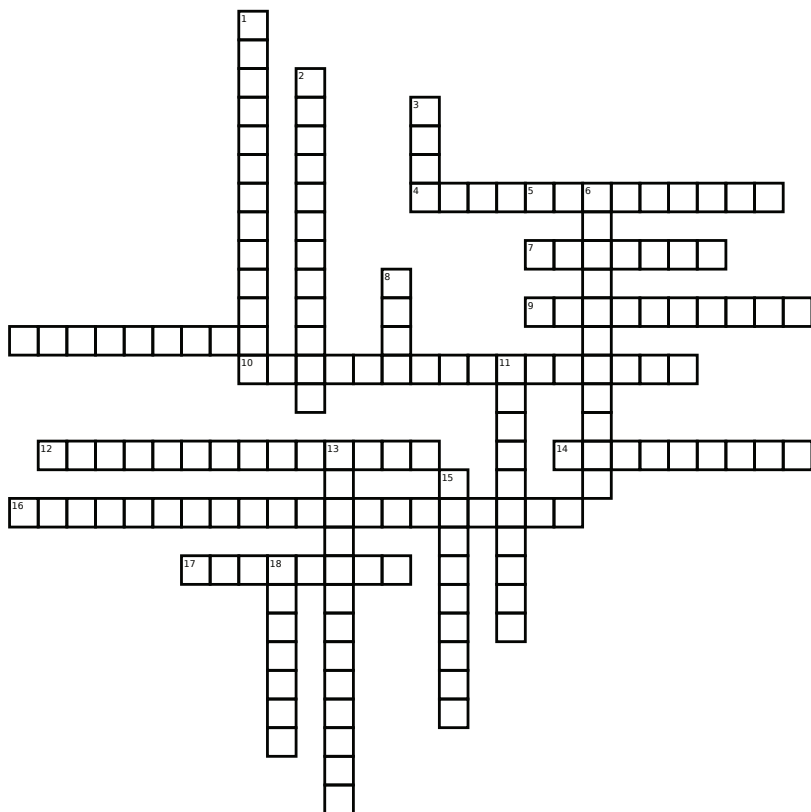


If you're thinking 'Hey that looks like microcomputed tomography of an Asian gecko inside a 7mm egg'... well ... you'd be spot on.
Captured by Ekaterina Strounina



This is a pretty sweet picture, but believe it or not, it's not sugar! This image shows iron oxide coated with silver a composite material that combines the magnetic properties of iron oxide with the conductivity and antimicrobial qualities of silver. Captured by Javeria Bashir

Solve these puzzles with words related to AIBN



Down

1. Materials with structures at the nanoscale.
2. Application of nanotechnology in medicine.
3. Messenger ribo nucleic acid.
6. Process of growing cells in a controlled environment.
8. Unit of heredity in living organisms.
11. Vessel designed for biological reactions.
13. Technology for manipulating small volumes of fluids.
15. Products derived from living organisms for treatment.
18. Referring to studies conducted outside a living organism.

Across

4. Substance that inhibits the growth of microorganisms.
5. Related to microorganisms.
7. Large molecule made up of repeating structural units
9. Instrument for magnifying small objects.
10. Design and construction of new biological parts.
12. Study of energy and heat transfer.
14. Miniaturized versions of organs grown *in vitro*.
16. Radioactive compounds used for diagnosis or therapy.
17. Protein produced by the immune system to fight pathogens.

B I O S E N S O R S X D U O J C Q C S B
 D N T S H U Z N K N I C B R I F S E A I
 L H A U G D Z J D X Y I N L J W W A F O
 M B N W U L T Y B U K Q F Q N Y E K E M
 O R T M A C T V Y F D G T E W T T K T A
 L E I E L E C T R O C H E M I S T R Y T
 E S B V K K E D B H E M G A J B R A D E
 C E O N A N O S T R U C T U R E Y T Y R
 U A D V T Q M P A C S Y N T H E T I C I
 L R Y R W S S W C R W H B U V T E X T A
 A C M Q Q W R O A L F Z B Y C S J J L L
 R H V R R D L J H R N K F G L Q O C G S
 Y E N A N O F A B R I C A T I O N A E X
 B T G G Y T K V T G V E A D Y U C H N A
 B B M J B I O I N F O R M A T I C S O M
 N A N O T E C H N O L O G Y X P G A M V
 N X J S M A K I S Q K S H E X Z W B I D
 W O U V K L T C W H O Z H T M C B F C O
 L U I L M K N R F G D J B D F X I M S E
 F L L N N A N O P A R T I C L E E P F E

Find a word

NANOTECHNOLOGY

SYNTHETIC

SAFETY

BIOSENSOR

NANOPARTICLE

NANOFABRICATION

ANTIBODY

MOLECULAR

BIOMATERIALS

GENOMICS

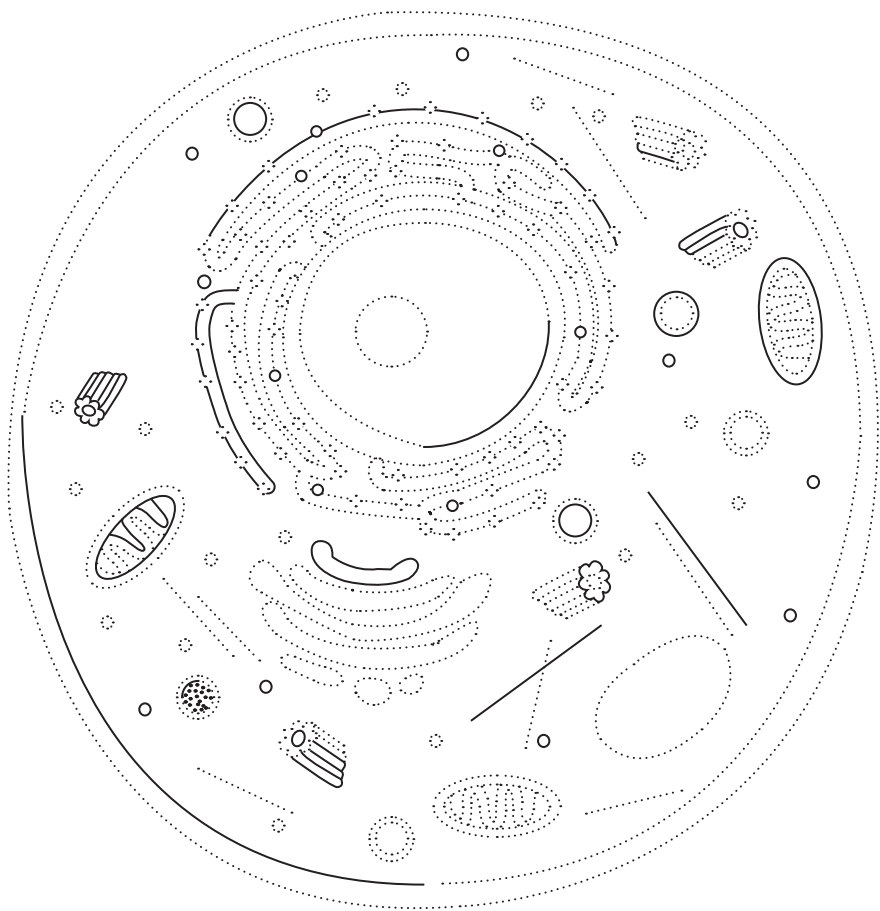
NANOSTRUCTURE

ELECTROCHEMISTRY

RESEARCH

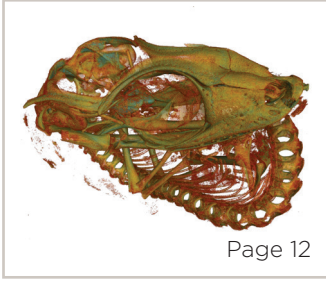
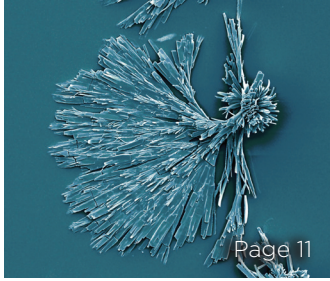
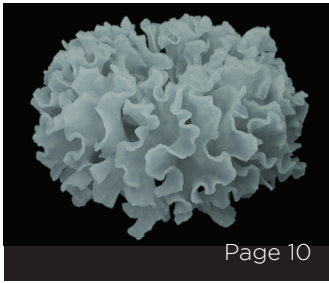
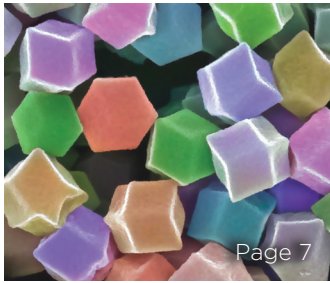
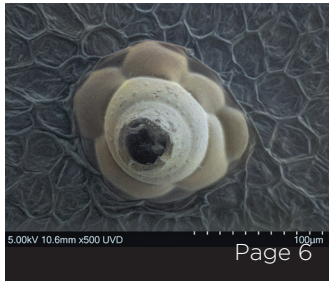
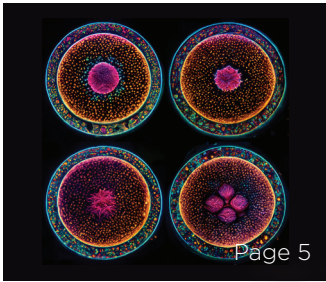
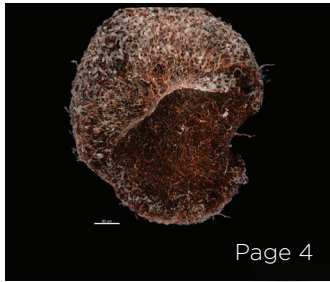
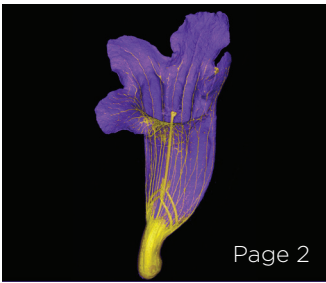
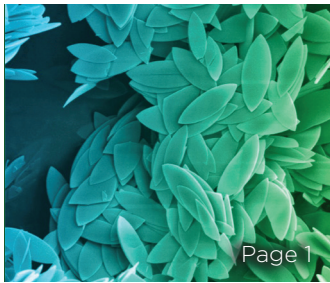
BIOINFORMATICS

Join the dots to discover a common sight
seen down a microscope



Curious what these images really look like?

Below are the full colour versions of the amazing images found in this book.



**Australian Institute
for Bioengineering
and Nanotechnology**

aibn.uq.edu.au/colour



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