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EDITORIAL

Brains and beauty — the 2017 cover

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As always, a new year at *Nature Reviews Neurology* brings a new cover image, which is chosen from entries to our annual cover competition. We are pleased to announce that this year's winner is David Fernandes-Cabral from the University of Pittsburgh Medical Center, USA who submitted a beautiful image of the corticospinal tract in the human brain (FIG. 1a).

The corticospinal tract is the longest white matter tract in the CNS, and can be disrupted by lesions such as brain tumours, arteriovenous malformations and strokes. Visualization of this tract through high-definition fibre tracking, as shown in Fernandes-Cabral's image, can aid surgical planning and help to improve outcomes after neurosurgery.

To acknowledge the high standard of entries to our latest cover competition, we wanted to take this opportunity to showcase our other shortlisted images. Interestingly, all three of our runners-up represent a departure from the brain theme that has characterized so many of our covers over the years.

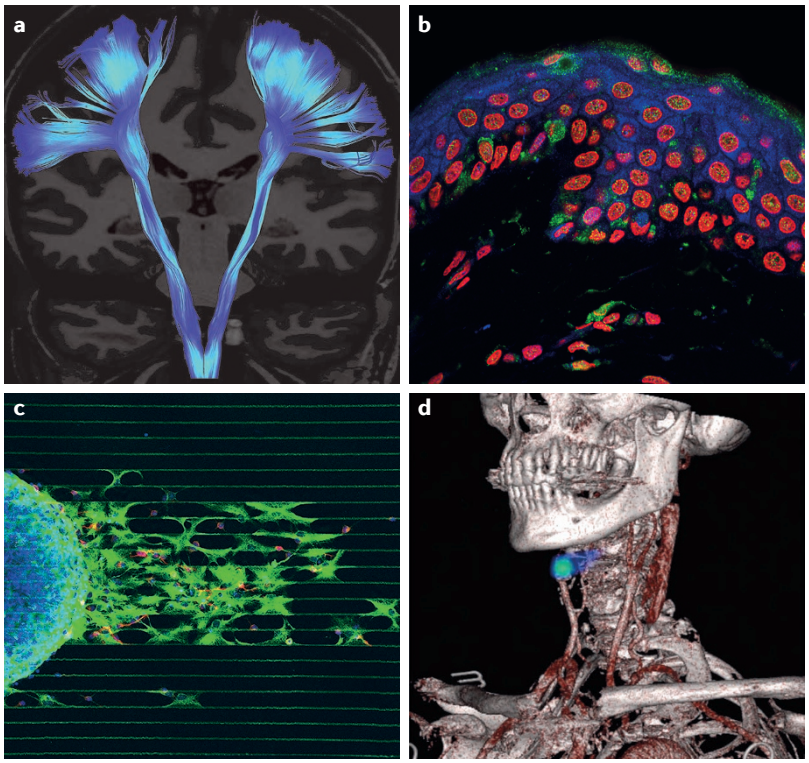

Figure 1 | **The cover competition shortlist. a** | The corticospinal tract. **b** | Phosphorylated tau protein in the skin. **c** | Adult subventricular zone stem cells. **d** | PET imaging of carotid atherosclerosis.

Maria Jimenez-Capdeville from the University of San Luis Potosí, Mexico submitted a confocal micrograph of phosphorylated tau protein in the epidermis of a patient with Alzheimer disease (AD) (FIG. 1b). The image, which is also credited to Erika Chi-Ahumada, Ildefonso Rodríguez-Leyva and Max Holtzer, was generated by applying antibodies against phosphorylated tau protein to skin biopsy tissue sections. The green fluorescence corresponds to a pathological form of tau that is phosphorylated at Thr231.

"This image adds to the evidence that proteinopathies are systemic diseases that can be found outside the brain; for instance, proteinopathies have been demonstrated in the gut and the salivary glands," comments Jimenez-Capdeville. "The relevance of this image to the neurology field is that the skin expresses proteins that characterize AD."

Another entry that caught our eye was from Woon Ryoung Kim at Korea University Medical School, Seoul, Korea (FIG. 1c). The image shows differentiation of adult subventricular zone (SVZ) stem cells into astrocytes (green) and neurons (red) on a cover glass stamped with lines of laminin protein (green).

"Seven days after differentiation, most of the astrocytes prefer to contact the laminin protein line, while differentiated neurons have reduced affinity for laminin." explains Kim. "These observations support the conclusion that differentiated neurons detach from laminin-rich blood vessels and basal lamina in the SVZ for migration into the olfactory bulb." This type of work could have important applications in stem cell research and neural engineering.

Finally, an intriguing contribution from Nicholas Evans at the University of Cambridge, UK shows PET imaging of atherosclerosis in the carotid artery, using the tracer sodium fluoride (NaF), which localizes to areas of microcalcification (FIG. 1d). The green region at the right carotid bifurcation corresponds to atheromatous plaque, which caused a stroke in the scanned patient.

"Microcalcification is a histopathological feature of atheroma at risk of rupture — so-called vulnerable plaques," says Evans. "NaF allows noninvasive *in vivo* detection of the process; this has important implications for understanding atherosclerosis pathophysiology, as well as potential clinical applications to identify and risk stratify vulnerable carotid atheroma."

We wish to thank everyone who entered our cover competition, and send our commiserations to those who were not successful this time. We plan to run another competition in 2017, so start preparing your entries now!