

RSC Applied Interfaces

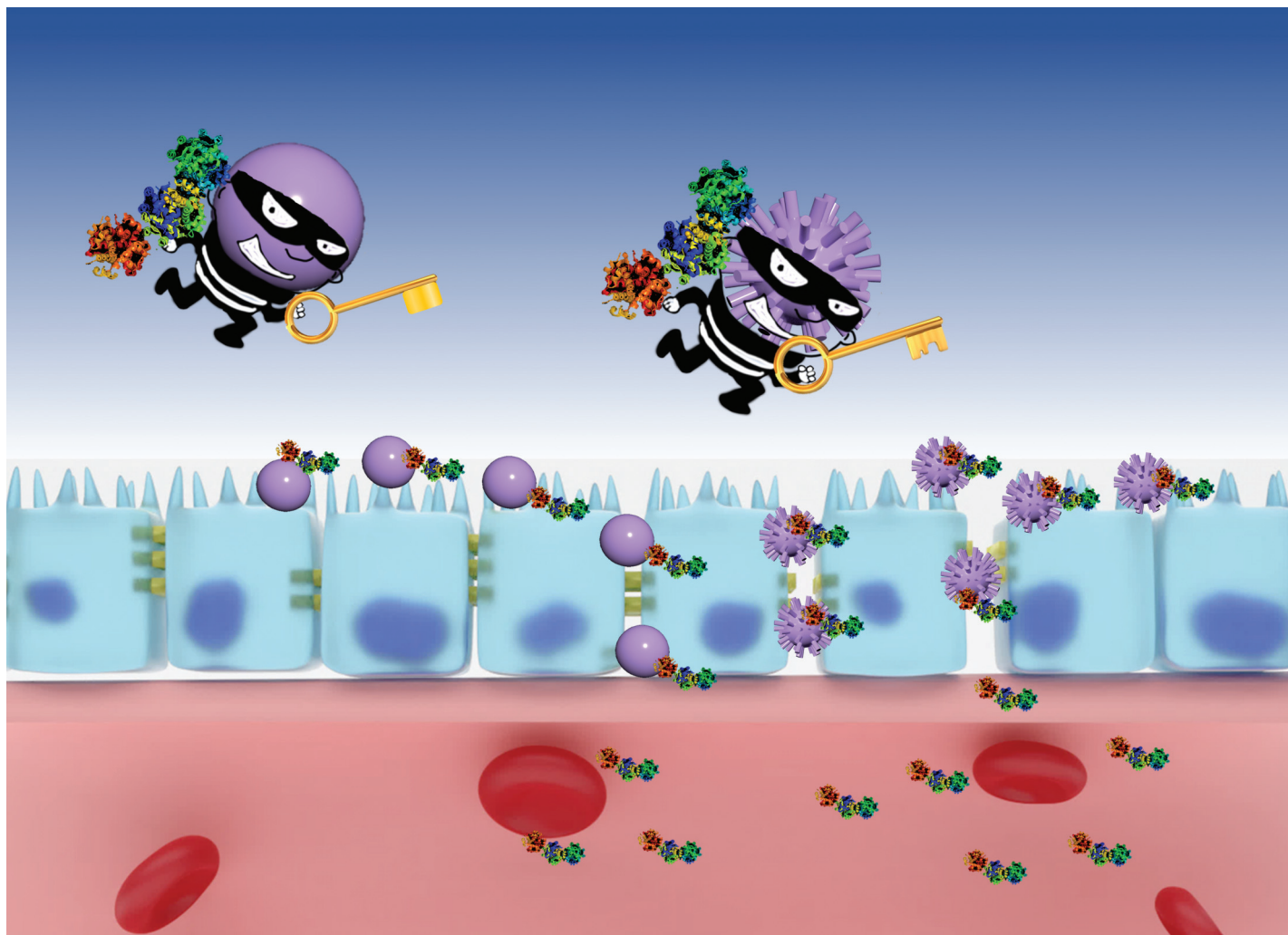
GOLD
OPEN
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**Interfacial and surface research
with an applied focus**

Interdisciplinary and open access

rsc.li/RSCApplInter

**Fundamental questions
Elemental answers**



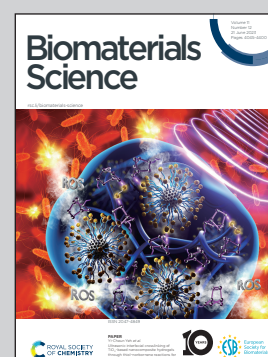
Showcasing the work of Yuxue Cao from A/Prof Amirali Popat's group at the School of Pharmacy, The University of Queensland (UQ), Australia. It also highlights our close collaboration with A/Prof Sumaira Hasnain (Mater Research Institute, UQ) and Dr Tushar Kumeria (Scientia Senior Lecturer, UNSW).

Virus-like silica nanoparticles enhance macromolecule permeation *in vivo*

This study presents the synthesis of small-sized virus-like silica nanoparticles (~60 nm) for the first time. Here we report the effect of nanoscale surface roughness of nanoparticles in modulating epithelial tight junctions in the gut and its ability to improve the permeation of macromolecules. This work highlights the potential of small-sized virus-like silica nanoparticles in facilitating insulin transportation across the intestinal barrier. This delivery platform holds a promise in developing oral protein delivery.

The authors would like to acknowledge Yuxue Cao for designing the cover artwork.

As featured in:



See Sumaira Z. Hasnain, Tushar Kumeria, Amirali Popat *et al.*, *Biomater. Sci.*, 2023, **11**, 4508.