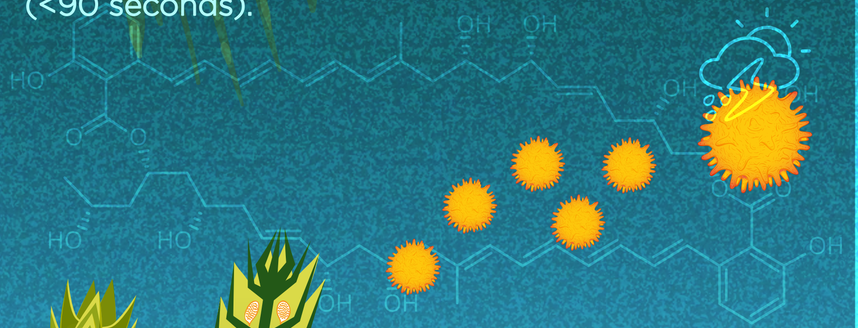
Electronic Supplementary Material (ESI) for Chemical Science.
This journal is © The Royal Society of Chemistry 2019

Deep-sea marine antibiotics see the light of day: Encapsulating Marinomycin A in pollen to prevent external damage

Extracted from marine bacteria, Marinomycin A acts as an antibiotic and anticancer agent but its efficacy is limited due to its instability under exposure to light (<90 seconds).



Pollen from *Lycopodium clavatum* exhibits extraordinary properties in protecting genetic material from external damage.

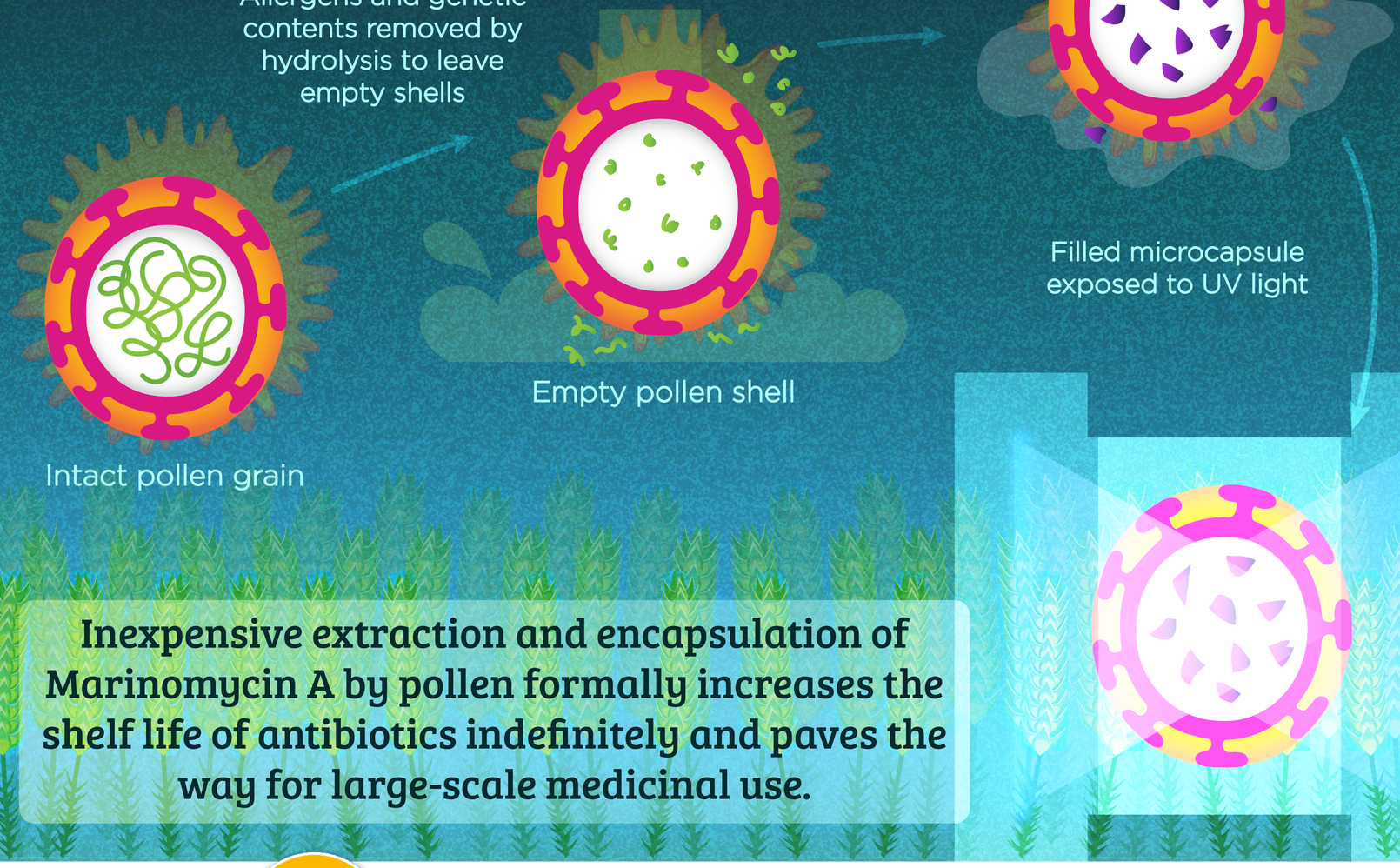
Because the pollen shells are porous, these three dimensional vessels could be used as microcapsules to store and protect materials against external damage.

Testing capability of plant pollen for encapsulating antibiotics

Allergens and genetic contents removed by hydrolysis to leave empty shells

Empty microcapsule extracts Marinomycin A from culture solution with high selectivity

Filled microcapsule exposed to UV light



Intact pollen grain

Empty pollen shell

Inexpensive extraction and encapsulation of Marinomycin A by pollen formally increases the shelf life of antibiotics indefinitely and paves the way for large-scale medicinal use.

Chemical Science

PICK OF THE WEEK

A natural solution to photoprotection and isolation of the potent polyene antibiotic, Marinomycin A.

Goss *et al.* (2019) | DOI: 10.1039/C9SC01375J

ROYAL SOCIETY OF CHEMISTRY