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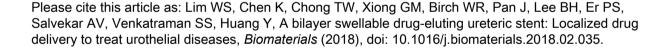
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#### ACCEPTED MANUSCRIPT

# A bilayer swellable drug-eluting ureteric stent: Localized drug delivery to treat urothelial diseases

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#### Abstract

- 22 A bilayer swellable drug-eluting ureteric stent (BSDEUS) is engineered and
- implemented, as a sustained drug delivery platform technology that enhances localized
- 24 drug delivery to the highly impermeable urothelium, for the treatment of urothelial
- diseases such as strictures and carcinomas. On deployment, the device swells to co-apt
- with the ureteric wall and ensure drug availability to these tissues.
- 27 BSDEUS consists of a stent spray-coated with a polymeric drug containing polylactic
- acid-co-caprolactone (PLC) layer which is overlaid by a swellable polyethylene glycol
- 29 diacrylate (PEGDA) based hydrogel.
- 30 In-vitro quantification of released drug demonstrated a tunable time-profile, indicating
- 31 sustained delivery over 1-month. The PEGDA hydrogel overlayer enhanced drug
- release and transport into explanted porcine ureteric tissues ex-vivo, under a simulated

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