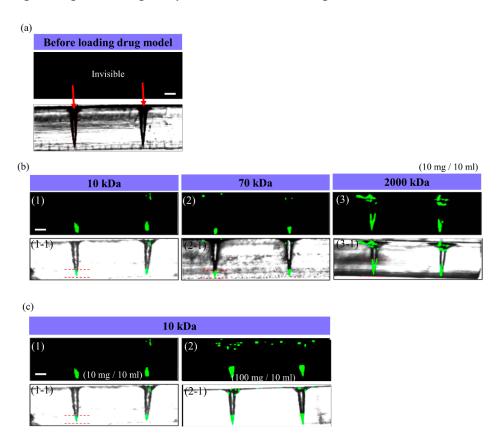




## Supplementary Materials: Effective Dispensing Methods for Loading Drugs Only to the Tip of DNA Microneedles

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**Figure S1.** Confocal fluorescence and merged images of mold cross sections before and after drug loading. (a) Before loading; (b-1) 10 kDa, (b-2) 70 kDa, and (b-3) 2000 kDa with 10 mg/10 mL; (c-1) 10 mg/10 mL, and (c-2) 100 mg/10 mL with 10 kDa (scale bar: 200  $\mu$ m).

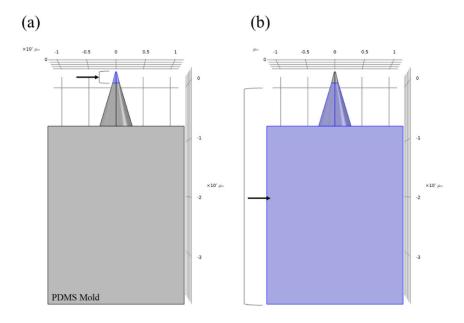


Figure S2. Geometric structure of domains. (a) Domain 1; (b) Domain 2.

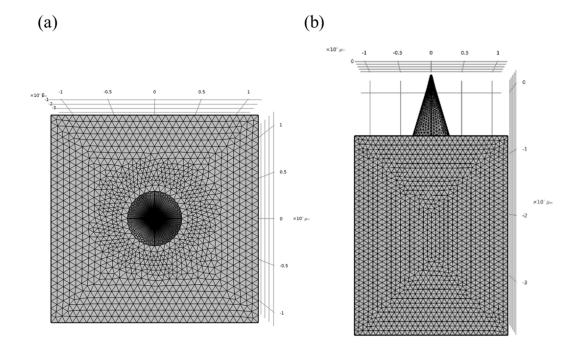


Figure S3. Mesh images. (a) Top view; (b) cross section.

Table S1. Material parameters employed for domains 1 and 2 in diffusion simulation.

|                                     | Domain 1             | Domain 2          |
|-------------------------------------|----------------------|-------------------|
| Concentration (c, mol/m³)           | 1326                 | 0                 |
| Molar volume of solute (v, cm³/mol) | $7.54 \times 10^{2}$ |                   |
| Molecular weight (M, g/mol)         | $10^{4}$             | $8 \times 10^{5}$ |
| Temperature (T, K)                  | 300                  | 300               |