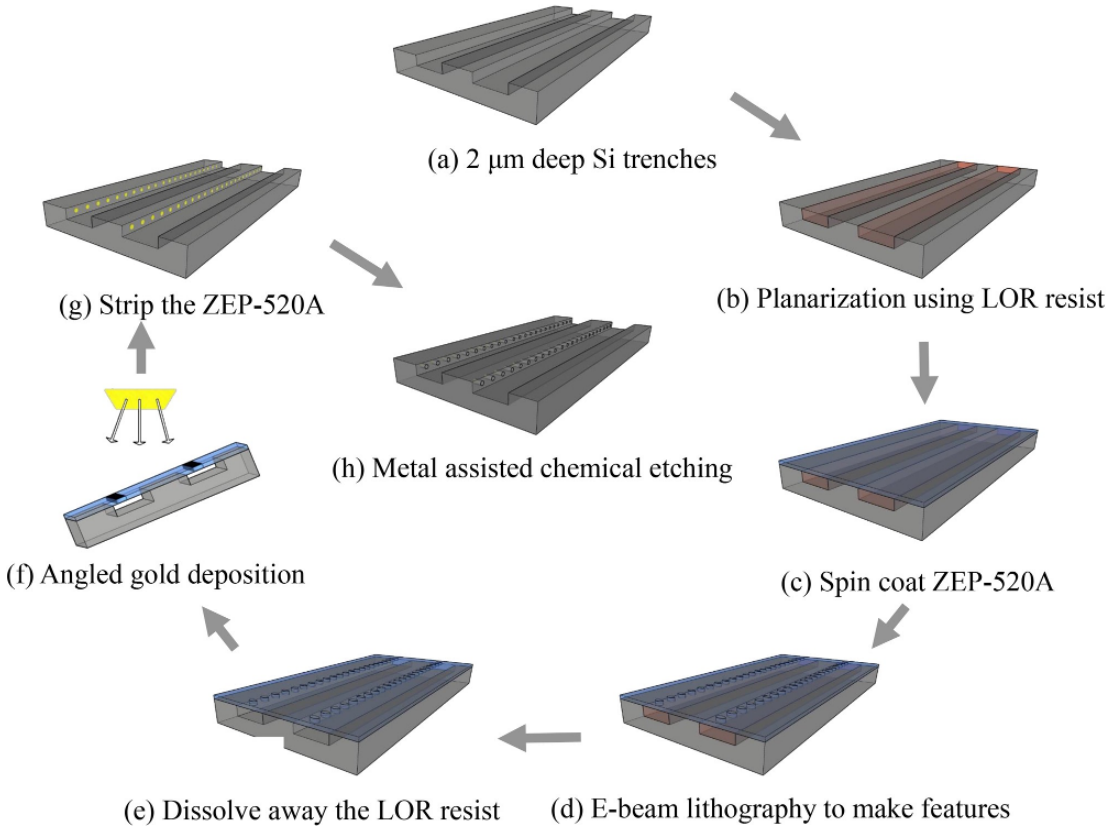

FIG. 1. This schematic illustrates the process flow for sidewall channel fabrication. In (a), trenches are formed using direct write lithography and DRIE. In (b), a polymer is spincast and back-etched to planarize the trenches. In (c) and (d), an EBL-sensitive resist is coated and exposed and developed to form small holes above the trenches. In (e) and (f), the planarizing material is dissolved away and Au is deposited on the trench sidewalls by electron beam evaporation on a fixture that tilts the sample 45°. In (g), the resist and excess metal are removed, and finally in (h), the sample is immersed in a MacEtchant.

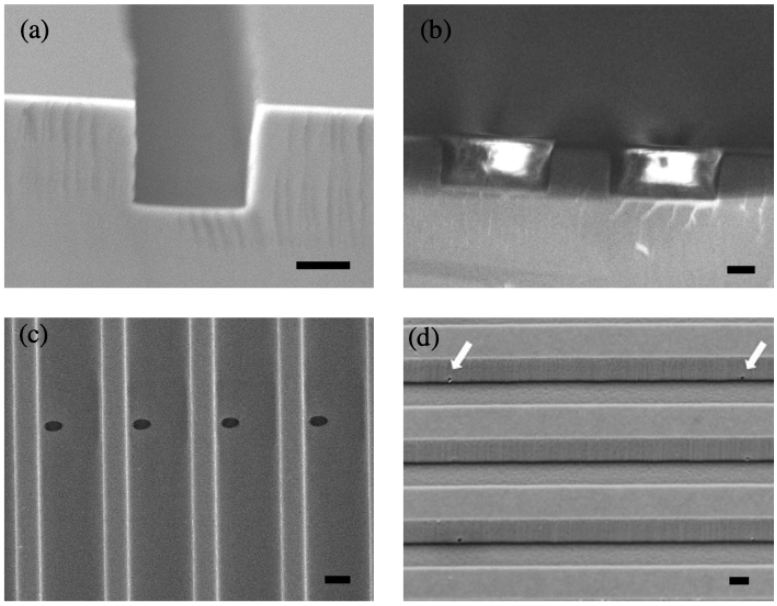

FIG. 2. SEM images show (a) DRIE-fabricated Si trenches with smooth sidewalls, (b) planarized trenches ready for projection membrane coating and patterning, (c) EBL-patterned projection membrane and (d) nanochannels after MacEtch. Scale bars denote 1μm.