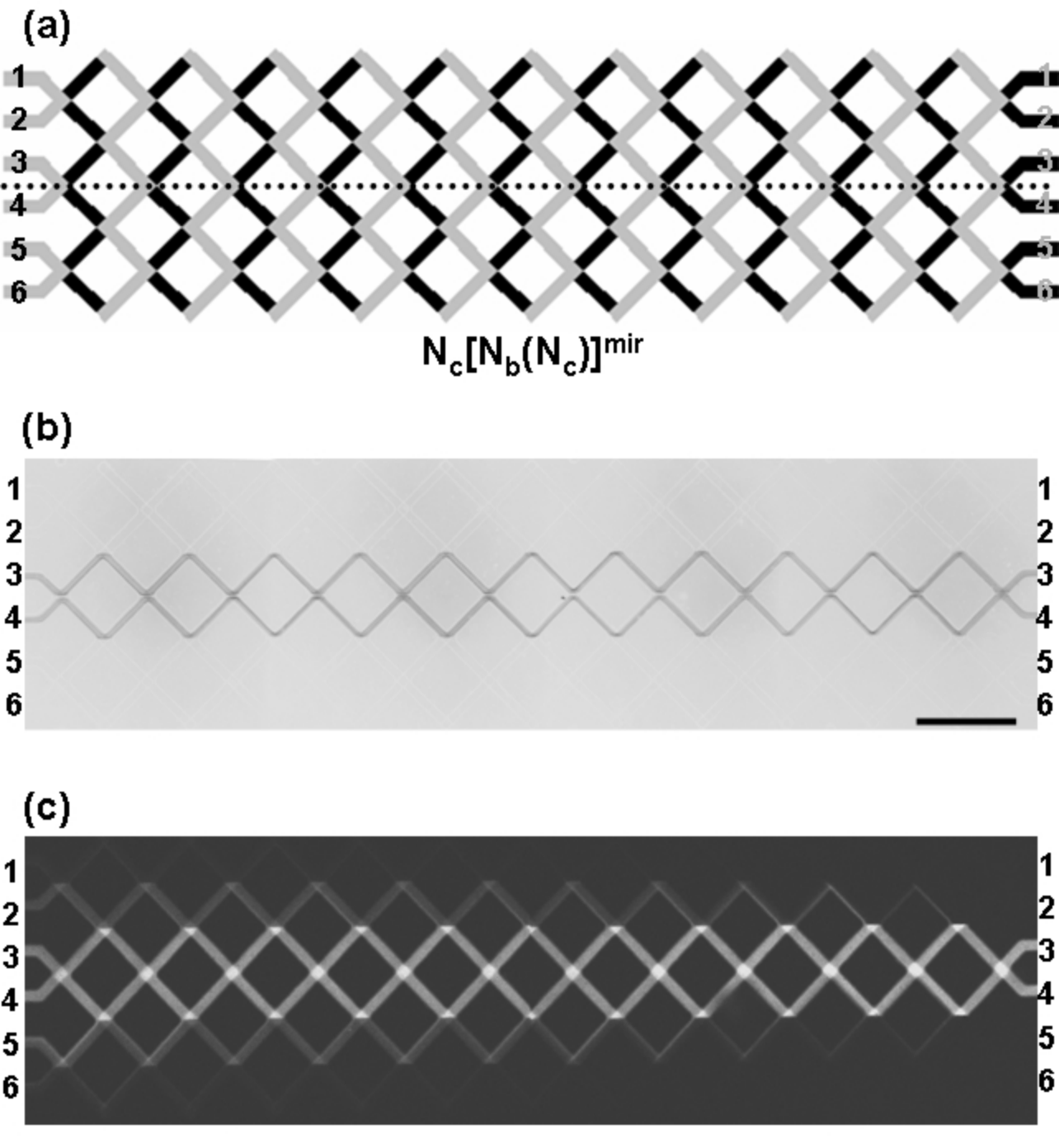


Fig. S1 (a) The schematic of node array configuration for $N_c[N_b(N_c)]^{mir}$ entangled network where gray and black color represented two distinguishable microchannel layers that were stacked face-to-face. (b) Fluorescence micrograph of bead trajectories. Beads were confined to travel along the imaginary lanes 3 and 4. This was due to the property of N nodes that was resembled to its topological 2-D equivalence. (c) Fluorescence micrograph of R110 dye gradient image in this network. In the absence of convective transport, dye molecules could only travel across parallel lanes by diffusion. Scale bar is 500μm.