Electronic Supplementary Material (ESI) for Journal of Materials Chemistry A.

SUPPORTING INFORMATION

for

Pseudopolymorphic seeding for rational synthesis of hybrid membranes with zeolitic imidazolate frameworks for enhanced molecular separation performance

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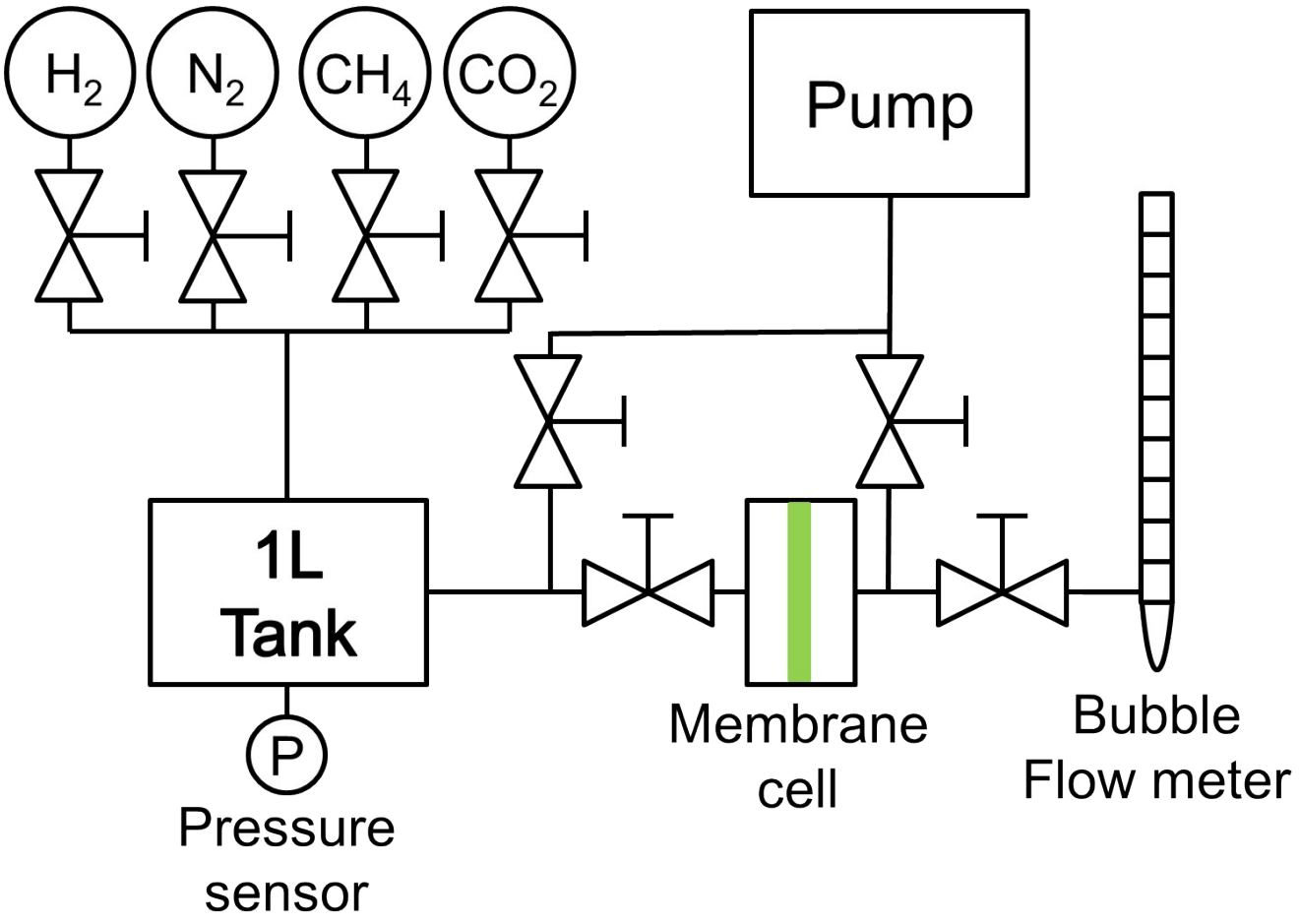

Figure S1. Illustration of proprietary single gas permeation setup used in this study

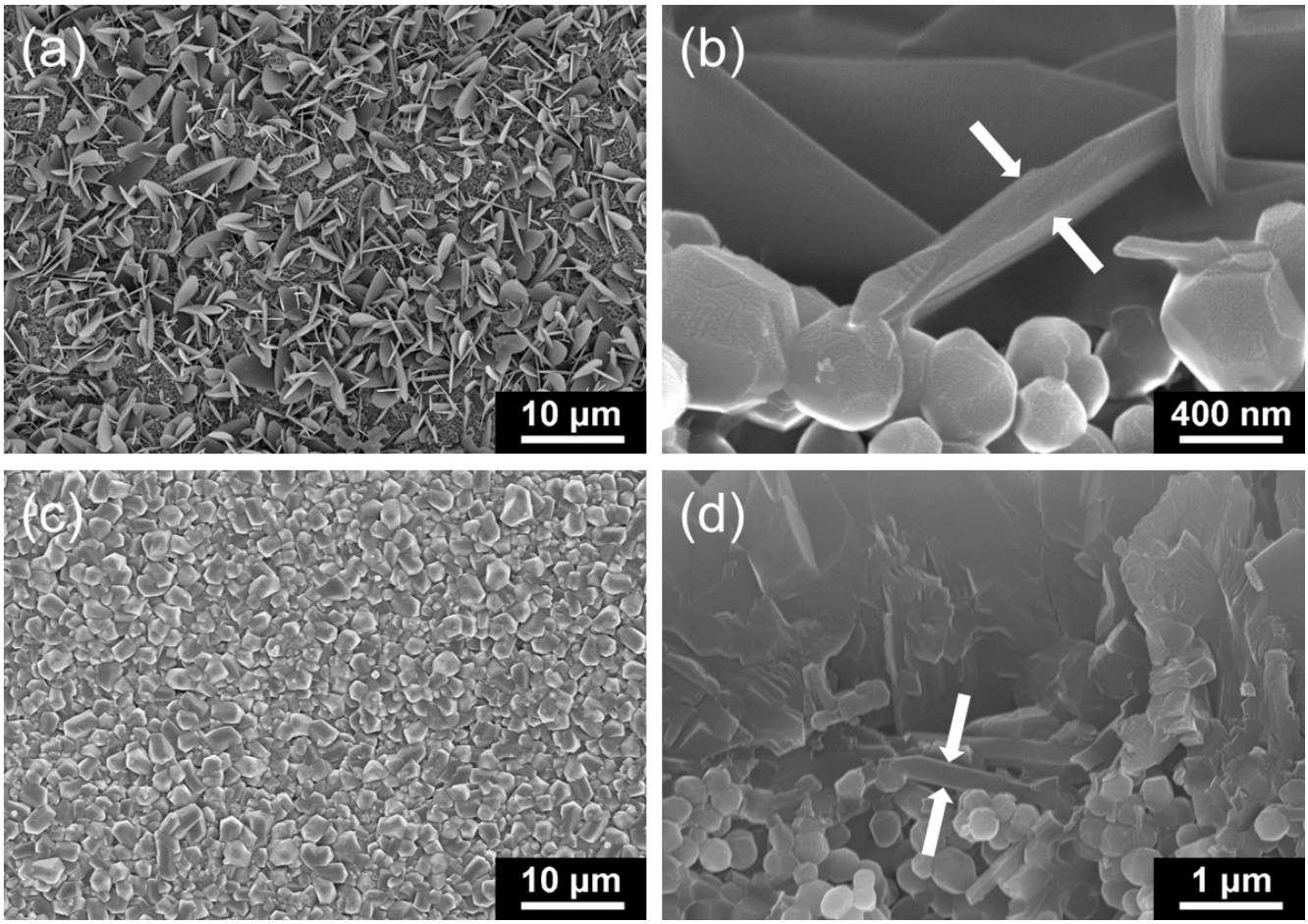

Figure S2. (a) Top-view and (b) side-view SEM images of ZIF-L seed layer; (c) top-view and (d) side-view of ZIF-L@ZIF-8 hybrid membrane. The white arrows indicate the location of ZIF-L crystals.

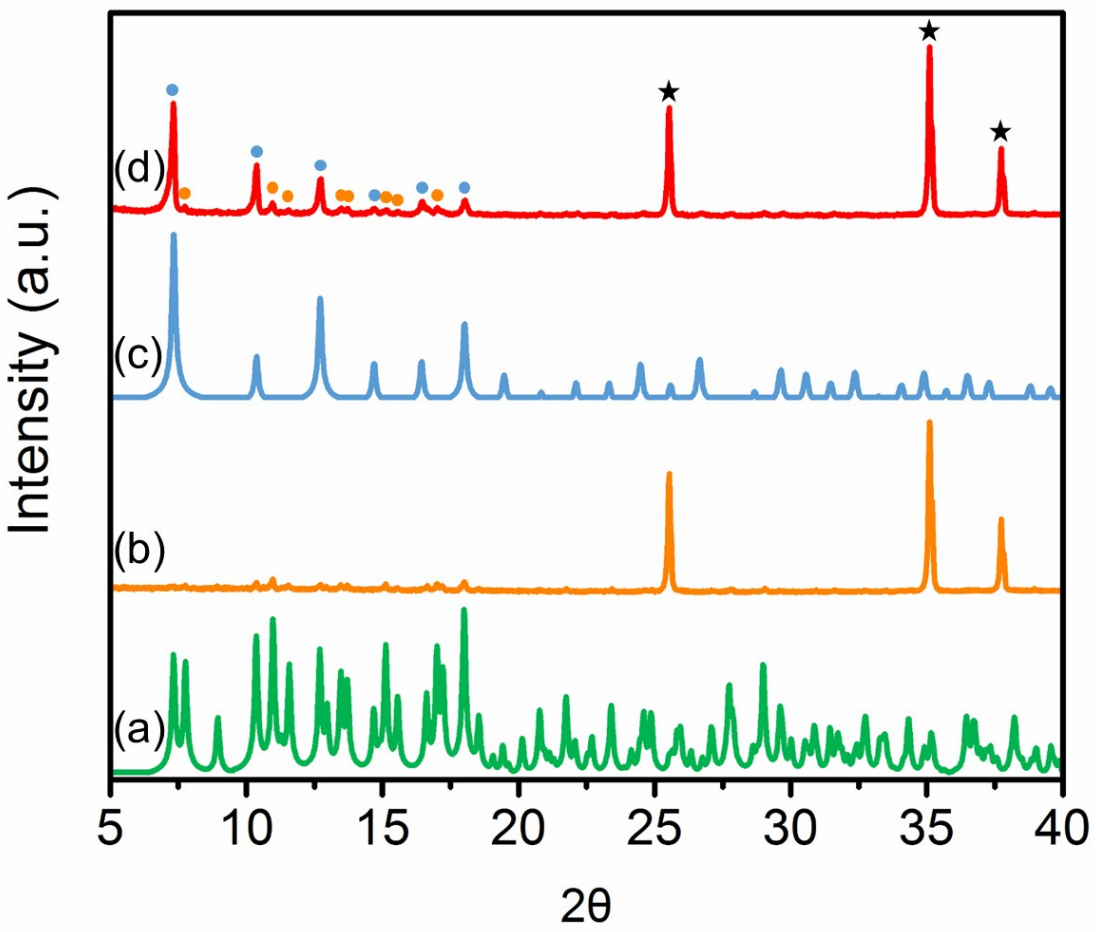

Figure S3. Simulated powder XRD patterns of (a) ZIF-L and (c) ZIF-8; experimentally-derived GIXRD patterns of (b) ZIF-L seed layer and (d) ZIF-L@ZIF-8 membrane. Asterisks denote signals from the α-alumina substrate.

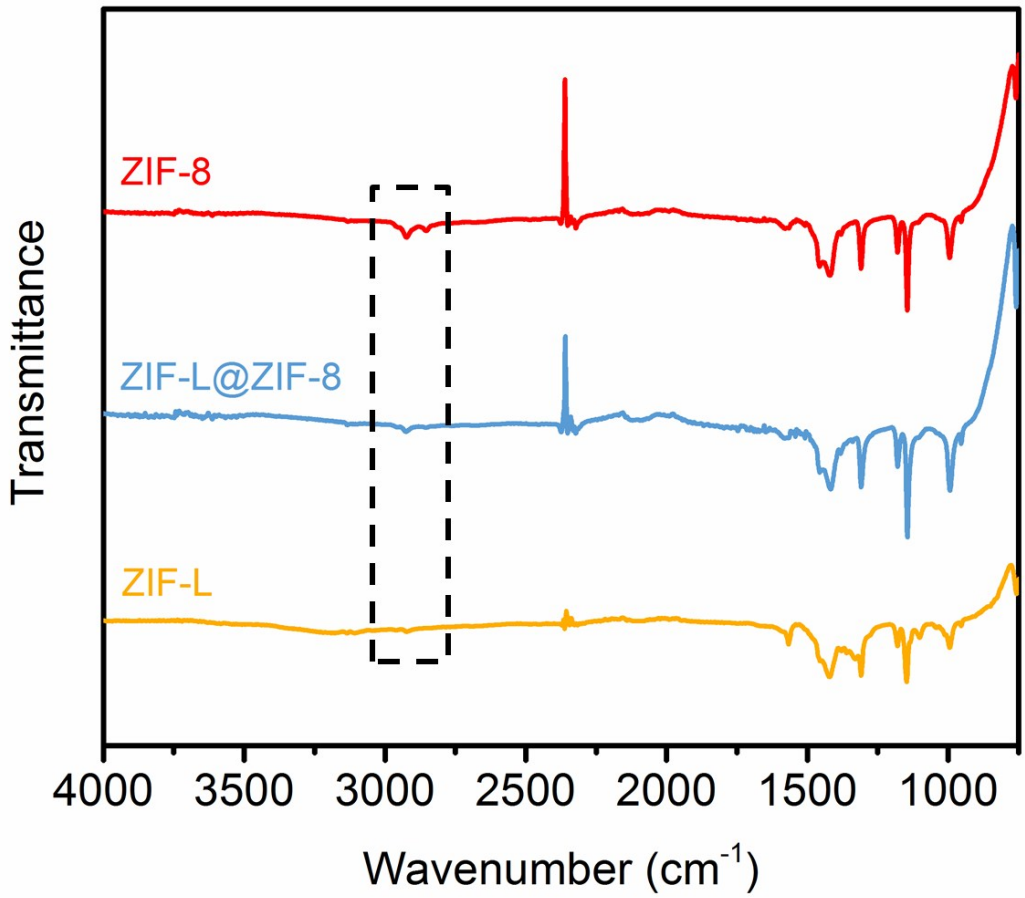

Figure S4. FT-IR spectra of ZIF-L seed layer, ZIF-L@ZIF-8 hybrid membrane, and pure ZIF-8 membrane. The dashed box highlights the difference between ZIF-8 and ZIF-L.

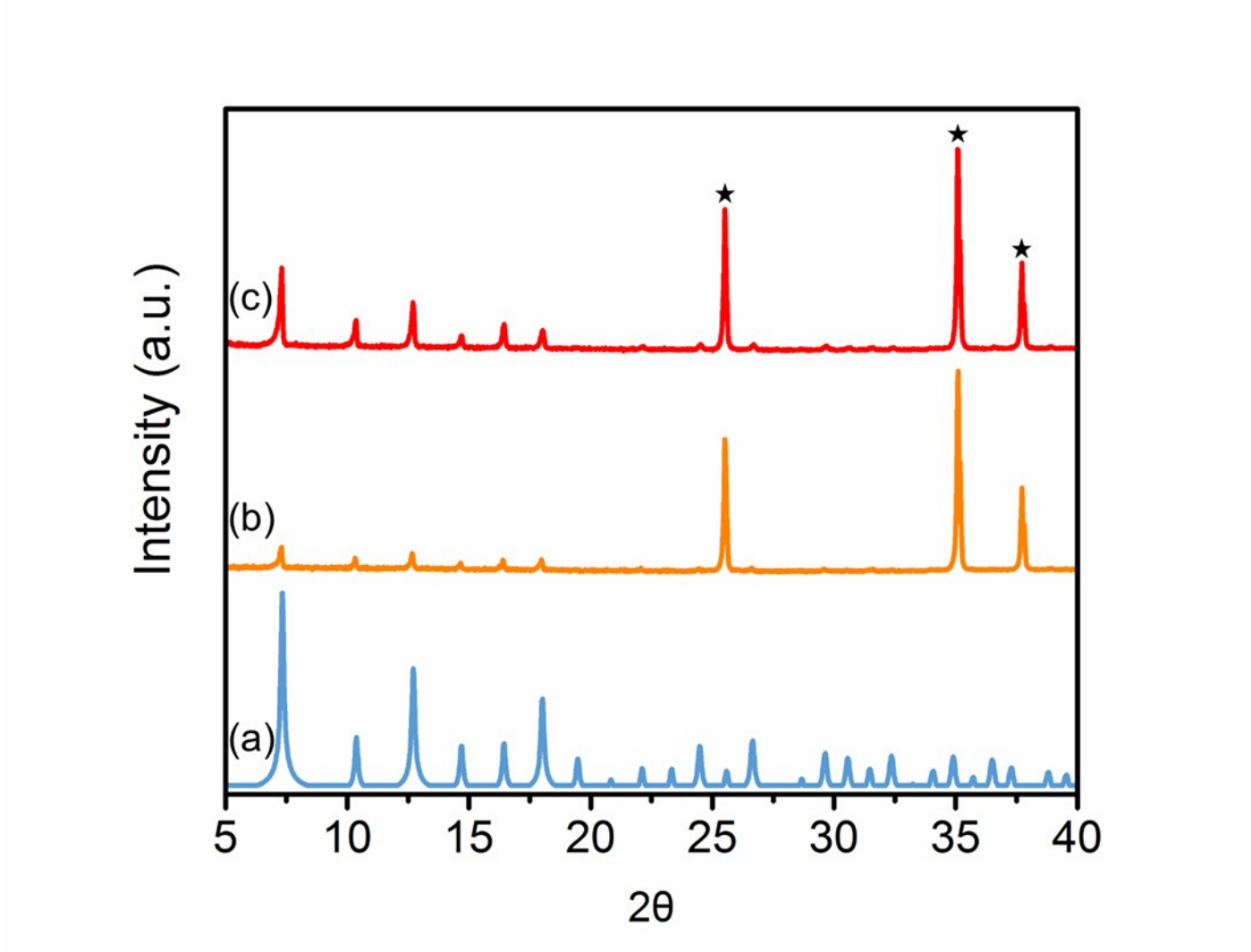

Figure S5. Simulated powder XRD patterns of (a) ZIF-8; experimentally-derived GIXRD patterns of (b) ZIF-8 seed layer and (c) ZIF-8 membrane. Asterisks denote signals from the α-alumina substrate.

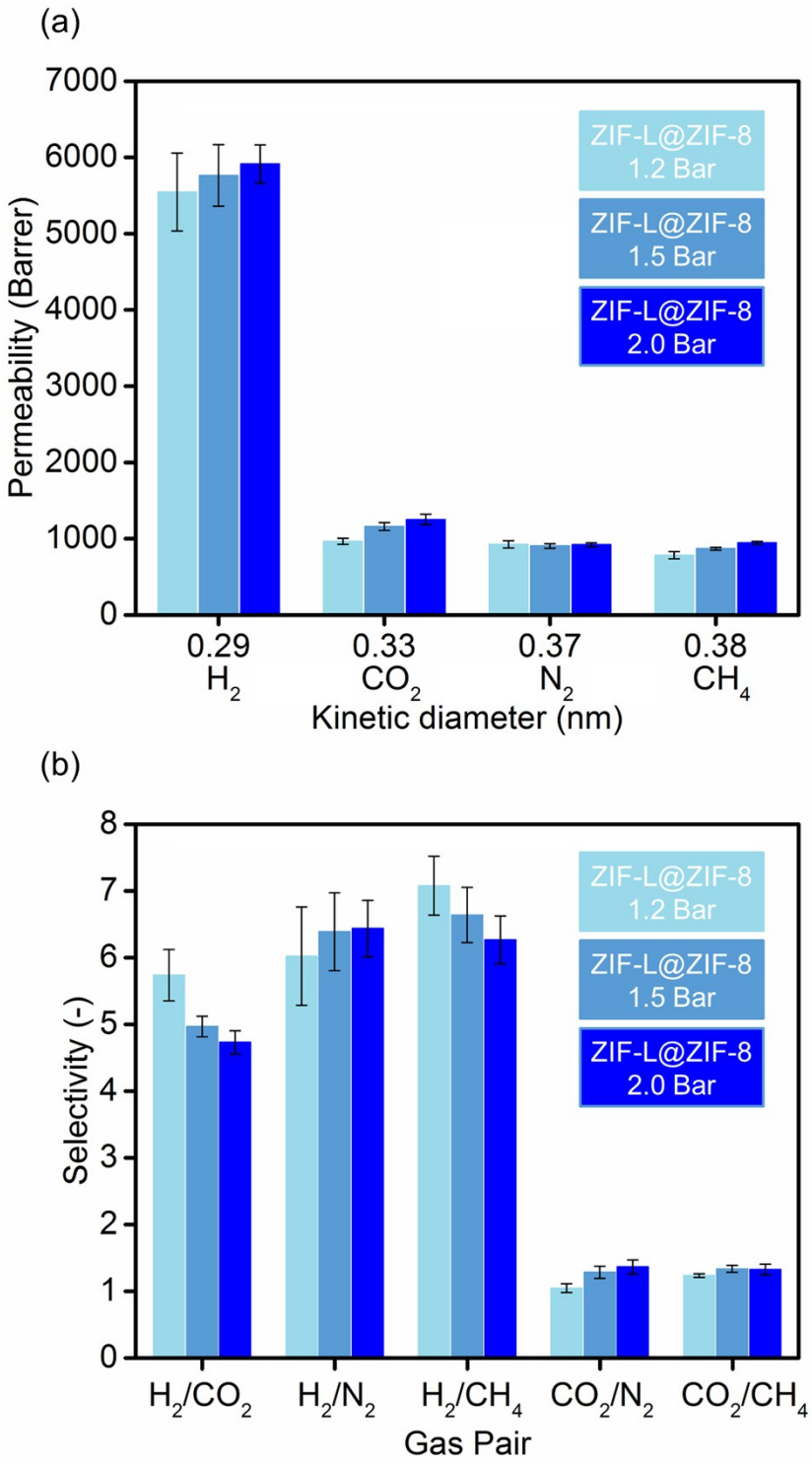

Figure S6. (a) Single gas permeability of ZIF-L@ZIF-8 membranes under feed pressure of 1.2, 1.5 and 2 bar; (b) ideal selectivity of ZIF-L@ZIF-8 membranes under feed pressure of 1.2, 1.5 and 2 bar.