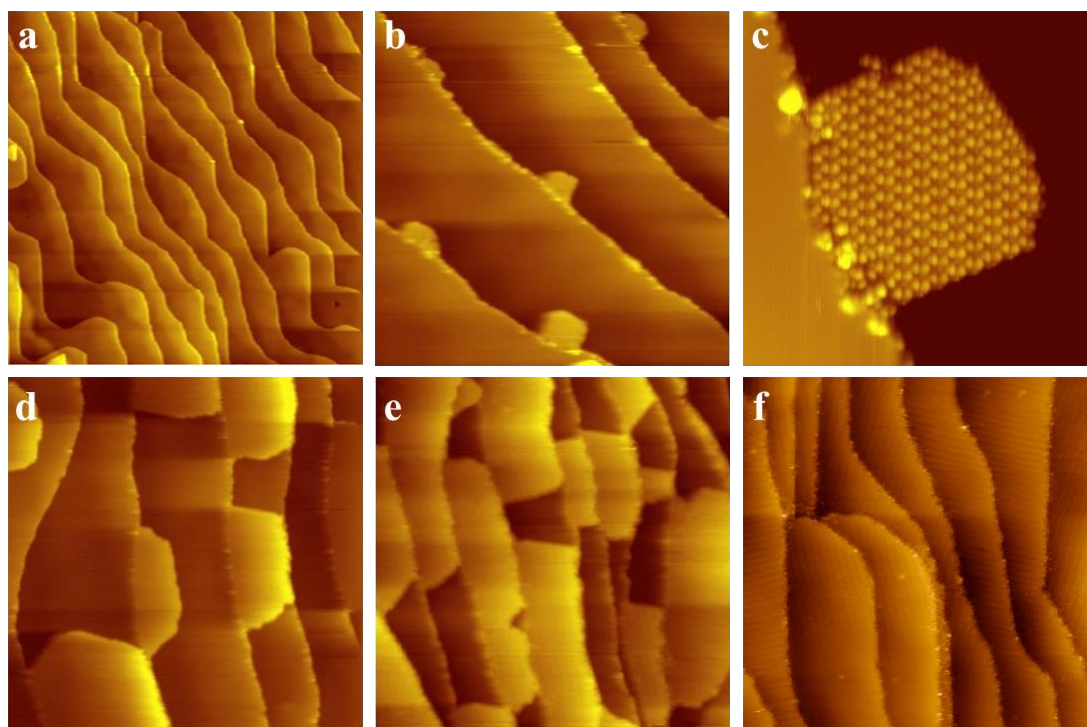
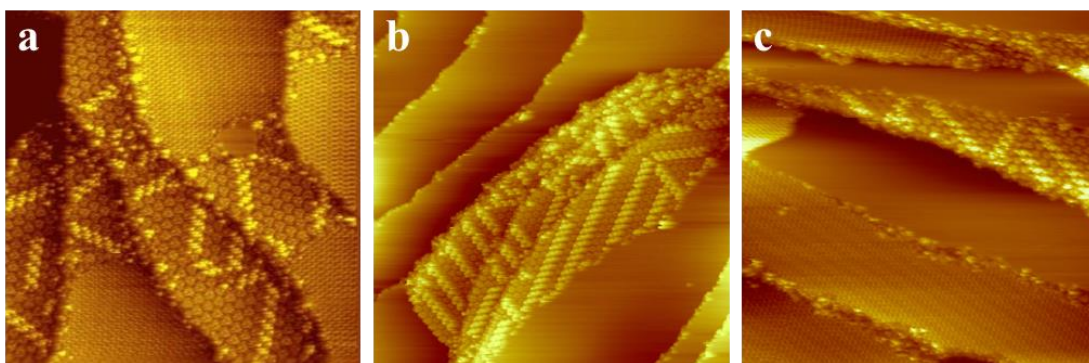
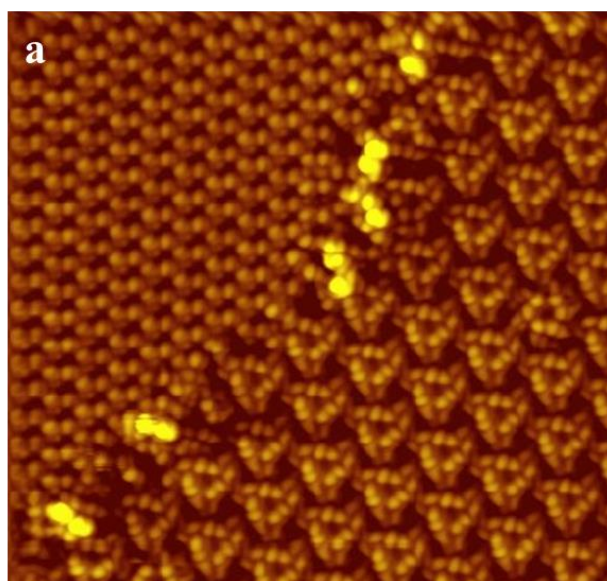




SI. 1 Anisotropic diffusion of homochiral domains of rubrene monomers at different coverage. (a) Flat and well-ordered Bi(111) substrate, 550 nm $\times$ 550 nm, +5.7V. (b) Homochiral domains at 0.1ML, 176 nm $\times$ 176 nm, +3.9V. (c) High-resolution images of a R- homochiral island, 30 nm $\times$ 30 nm, +3.1V. (d) Homochiral domains at 0.4ML, 200 nm $\times$ 200 nm, +4.2V. (e) Homochiral domains at 0.7ML, 180nm $\times$ 180nm, +3.9V (f) Homochiral domains at 1ML, 200 nm $\times$ 200 nm, +4.0V.



SI. 2 Supramolecular self-assembly formed at narrow terrace of Bi(111) substrate. (a) 150 nm $\times$ 150nm, +3.5V. (b) 100 nm $\times$ 100nm, +3.6V. (c) 100 nm $\times$ 100nm, +3.5V.



SI. 3 The boundary between homochiral domain of rubrene monomers and supramolecular self-assembly, 30 nm $\times$ 30 nm, +2.0V.

a) 30nmx30nm, 2.0V.