SUPPORTING INFORMATION

Chiral Self-assembly of Nonplanar 10,10'-dibromo-9,9'-bianthryl Molecules on Ag(111)

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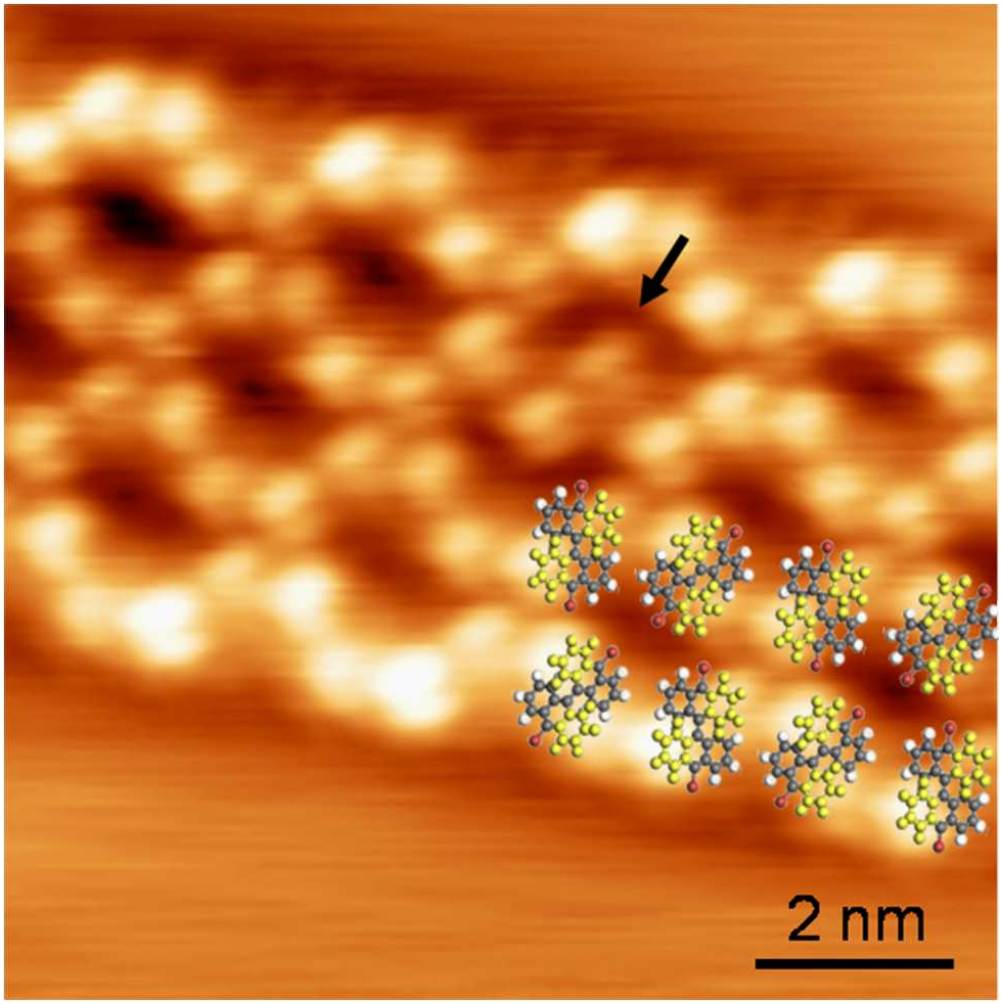

Figure S1. Enlarged image of the inset in Fig 2b. The arrow points out a defect assembly. The overlaid model shows a tentative molecular arrangement. (V_{tip}= -0.6V)

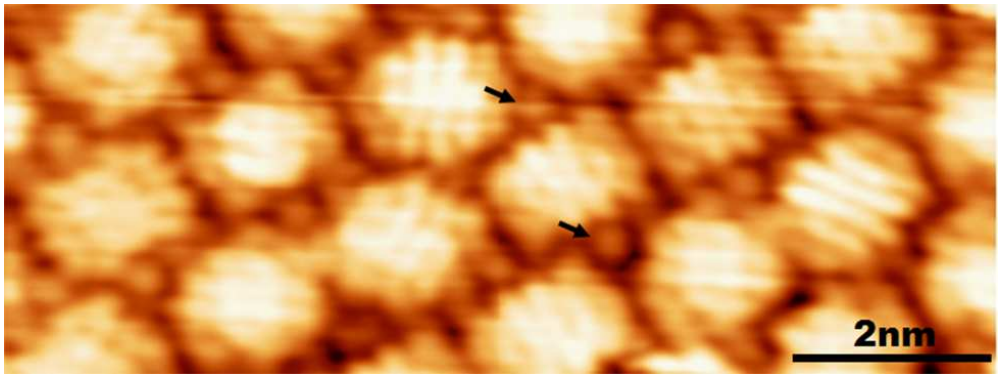

Figure S2. STM image of nanographene units produced after annealing the sample to 450K (V_{tip}=0.01V). The protrusions (pointed out by black arrows) beside the nanographene units are considered to be the detached Br atoms.[1,2]

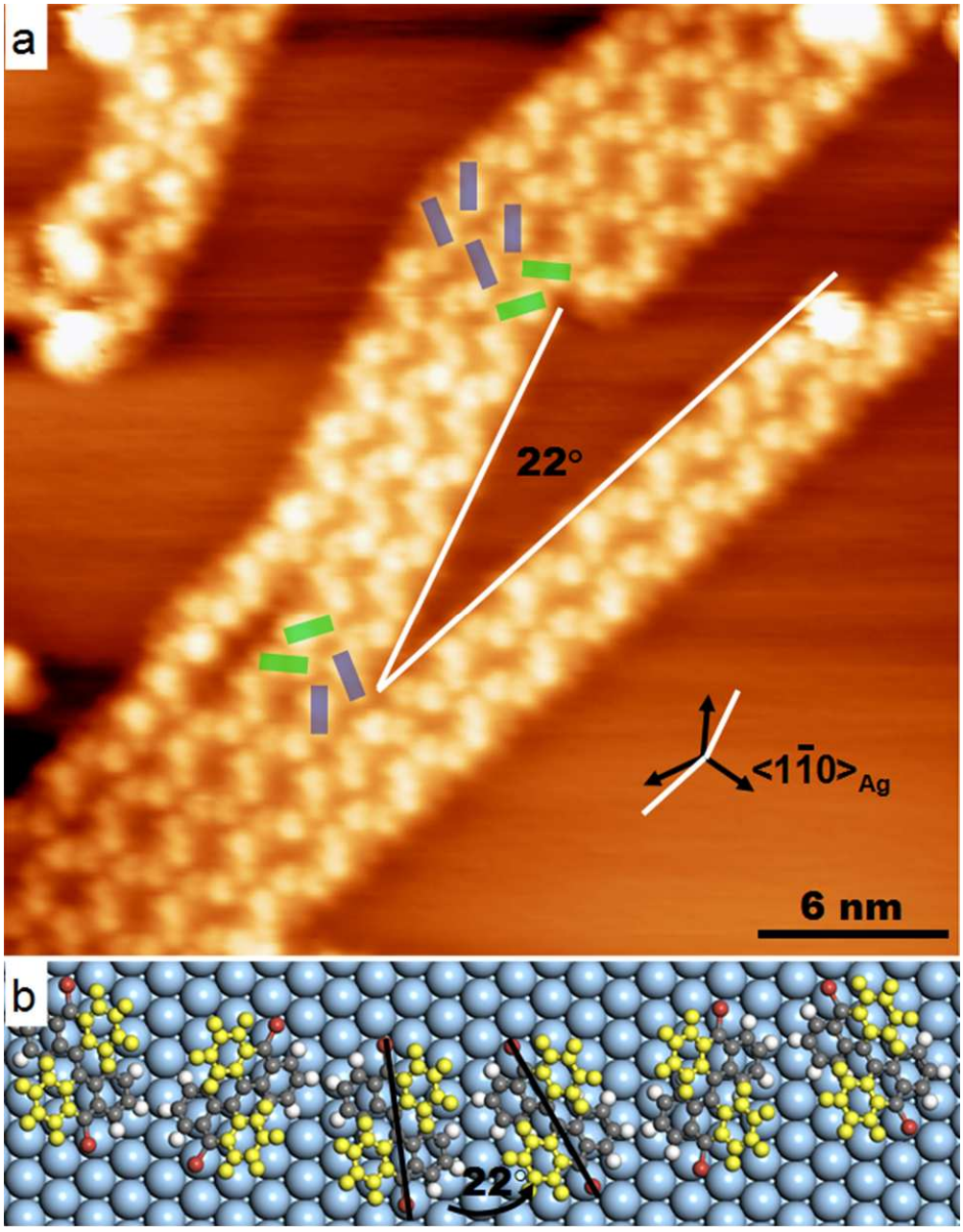

Figure S3. (a) STM image showing the deviation of DBBA islands (V_{tip}=1.2V). Defects of adsorbing two homochiral molecules back to back are marked with colored rods. Such defects are considered to cause a deviation of 22° between domains and the reversion of domain chirality. (b) Tentative model of the deviation. The angle between the C-Br bonds of the homochiral molecules at the corner is 22°.

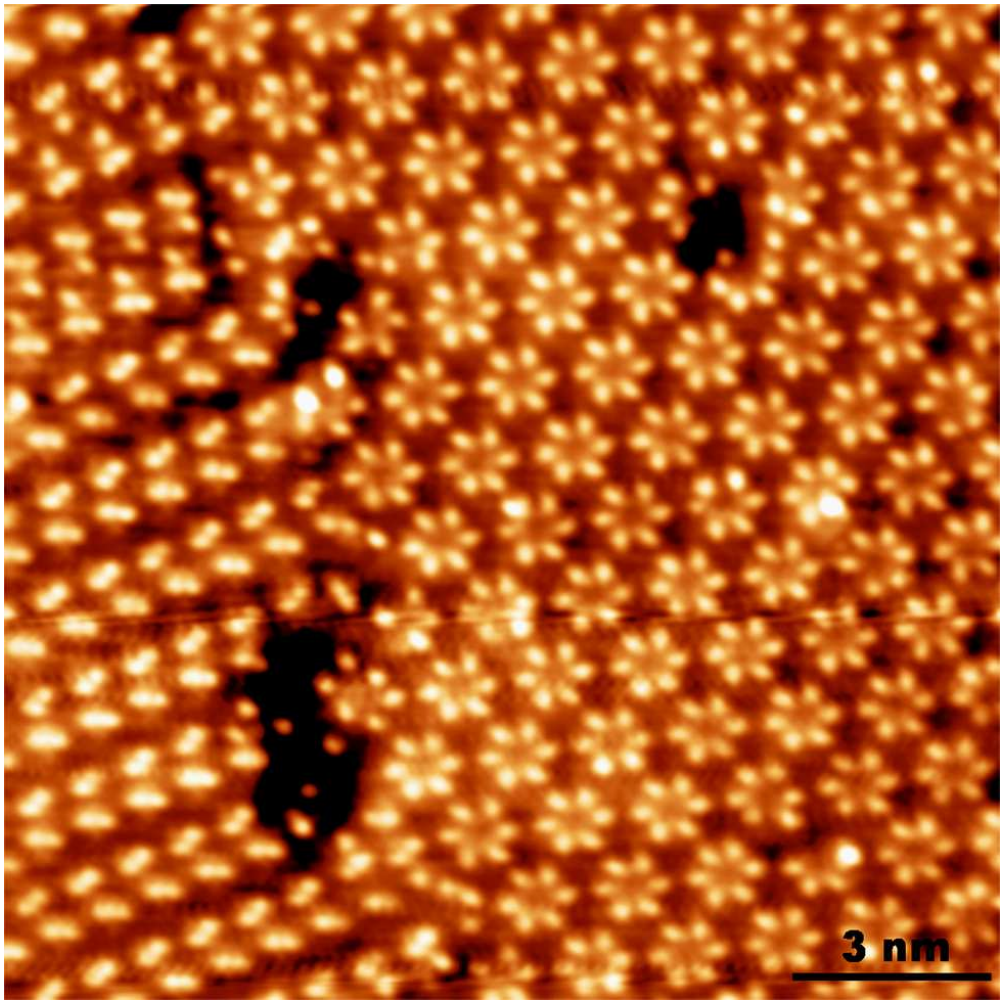

Figure S4. Enlarged image of the inset in Figure 3. (V_{tip}= -2.0V)

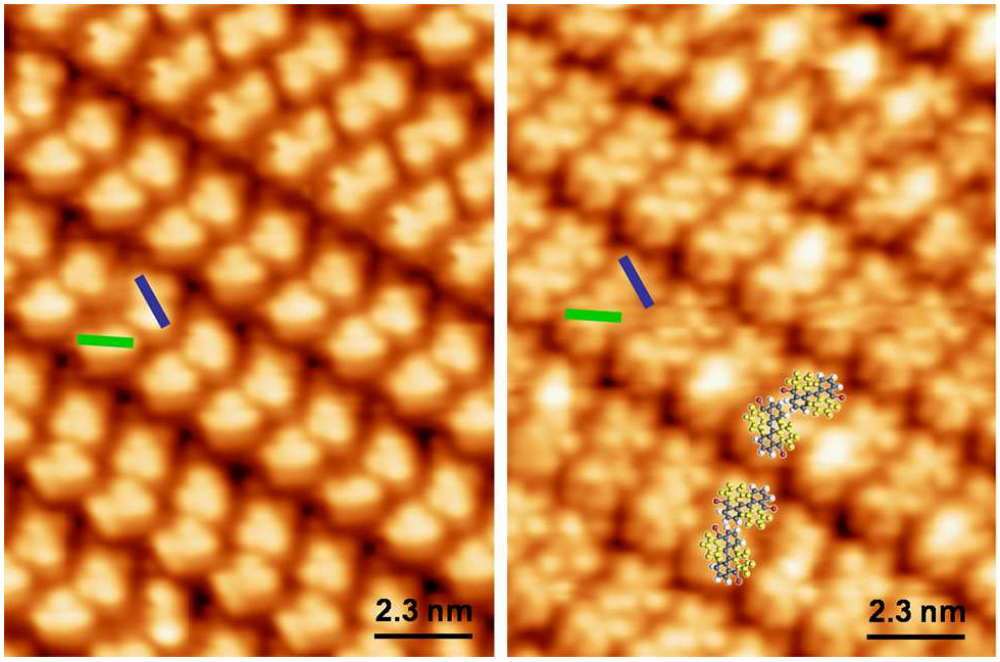

Figure S5. Enlarged images of Fig 4b (left, V_{tip}= 0.5V) and 4c (right, V_{tip}= -2.5V). The colored rods show the up-tilted phenyl groups, where green for L-DBBA and blue for R-DBBA. The overlaid model shows a tentative molecular arrangement.

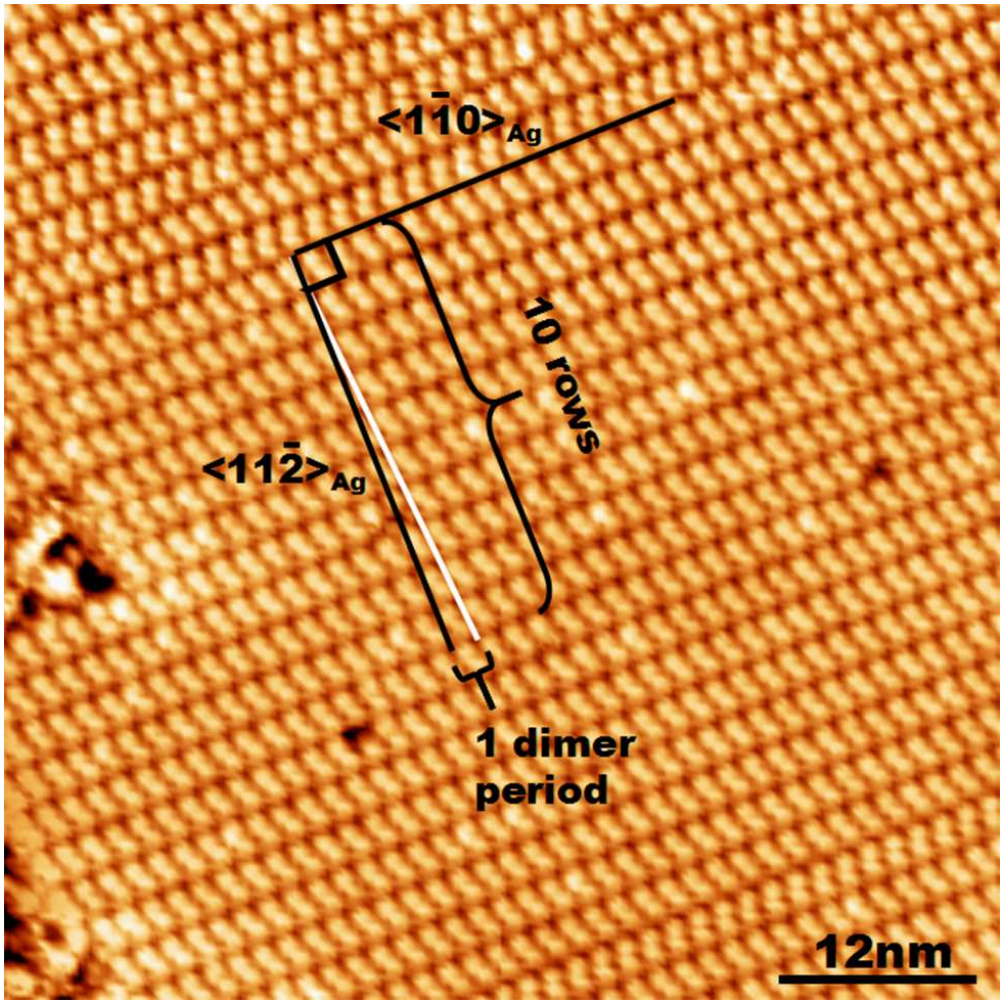

Figure S6. STM image showing the gliding between adjacent N-rows (V_{tip}= -2.0V). A dimer period is tentatively considered as 5 lattice constant of Ag(111), so the gliding distance between neighboring rows is 0.5 lattice constant.

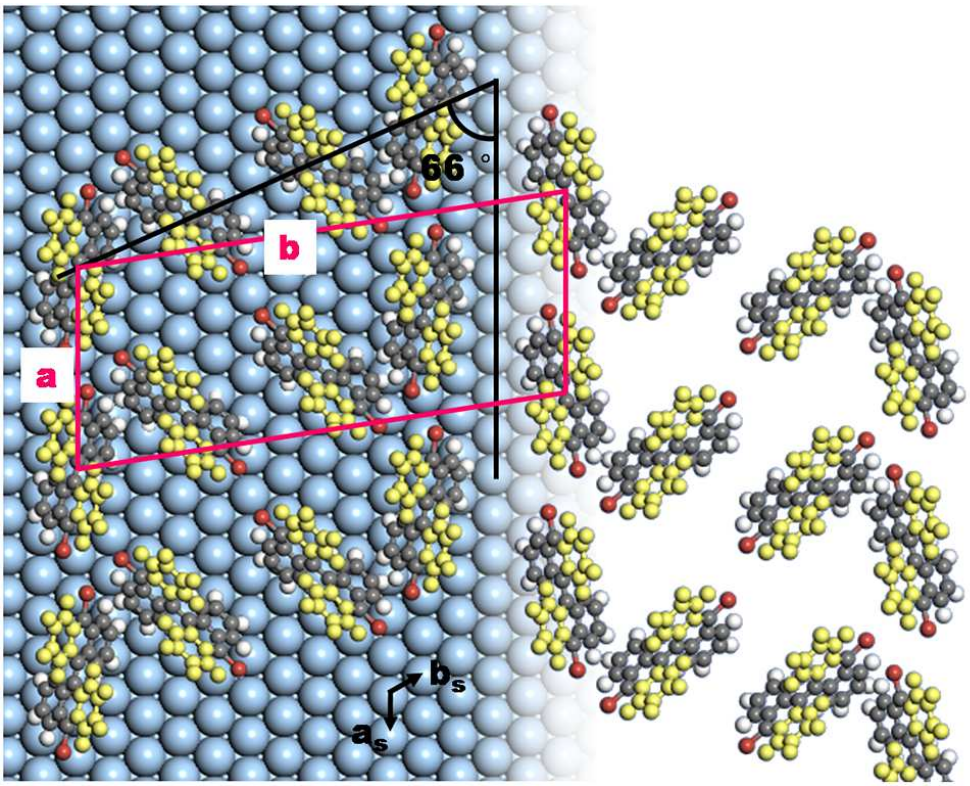

Figure S7. Tentative model of W-rows. DBBA molecules adsorb on the top site of surface atoms with C-Br axis deviate +10° from $<1\ \bar{1}\ 0>_{Ag}$. The angle between tetramer axis and $<1\ \bar{1}\ 0>_{Ag}$ is 66°. Unit cell matrix is $\begin{pmatrix} a \\ b \end{pmatrix} = \begin{pmatrix} 5 & 0 \\ 5 & 14 \end{pmatrix} \begin{pmatrix} a_s \\ b_s \end{pmatrix}$.

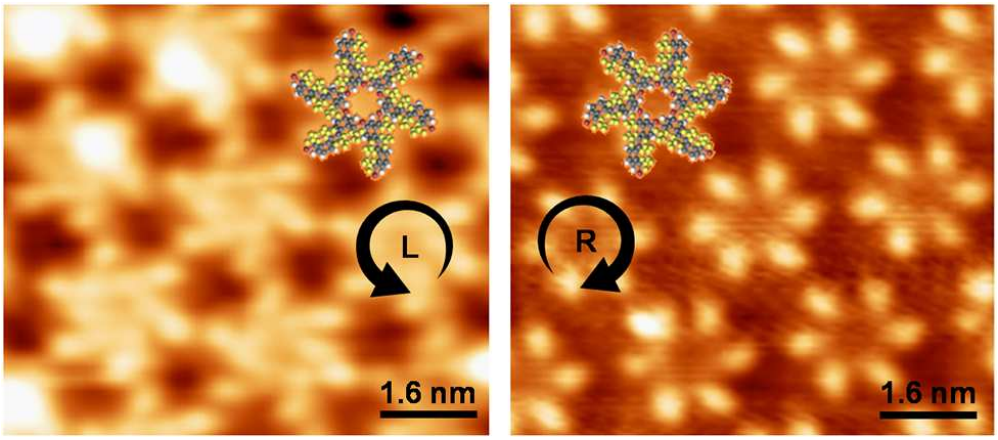

Figure S8. Enlarged images of the insets in Fig 5a (left, V_{tip}= -2.5V) and 5b (right, V_{tip}= -2.0V). The black arrows show the rotate direction of protrusion arrangement. The overlaid model shows a tentative molecular arrangement.

REFERENCES

(1) Huang, H.; Wei, D.; Sun, J.; Wong, S. L.; Feng, Y. P.; Neto, A. H.; Wee, A. T. S. Spatially resolved electronic structures of atomically precise armchair graphene nanoribbons. *Sci. rep.* **2012**, *2*, 983.

(2) Simonov, K. A.; Vinogradov, N. A.; Vinogradov, A. S.; Generalov, A. V.; Zagrebina, E. M.; Svirskiy, G. I.; Cafolla, A. A.; Carpy, T.; Cunniffe, J. P.; Taketsugu, T.; et al. From graphene nanoribbons on Cu(111) to nanographene on Cu(110): Critical role of substrate structure in the bottom-up fabrication strategy. *ACSnano* **2015**, *9*, 8997-9011.