

Constrained crystallization of poly(L-lactic acid) in thin films prepared by dip coating

Supplementary Material

Marylène Vayer, Alain Pineau, Fabienne Warmont, Marjorie Roulet, Christophe Sinturel

Interfaces, Confinement, Matériaux et Nanostructures (ICMN), CNRS-Université d'Orléans, UMR 7374, 1b, Rue de la Férollerie, C.S. 40059, 45071 Orléans Cedex 2, France

Corresponding Author

marylene.vayer@univ-orleans.fr

Figure SM 1 : AFM of PLLA100K in 1, 4 dioxane

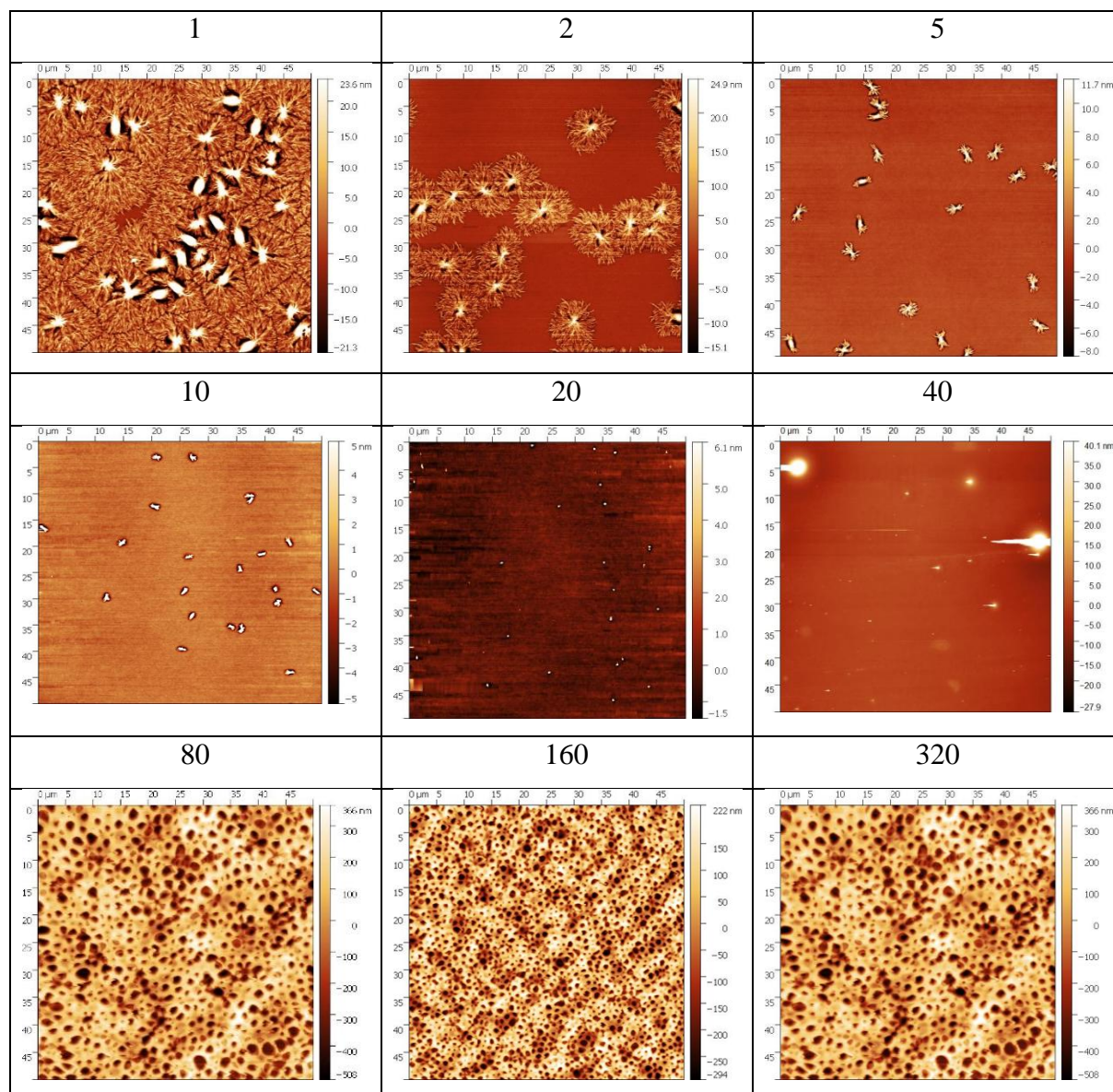


Figure SM 1: AFM images of thin film obtained by dip coating a PLLA 100K solution in dioxane at different withdrawal speeds from 1 to 320 mm.min⁻¹. The withdrawal speeds in mm.min⁻¹ are indicated above the images.

Figure SM 2 : AFM of PLLA 323K in 1, 4 dioxane

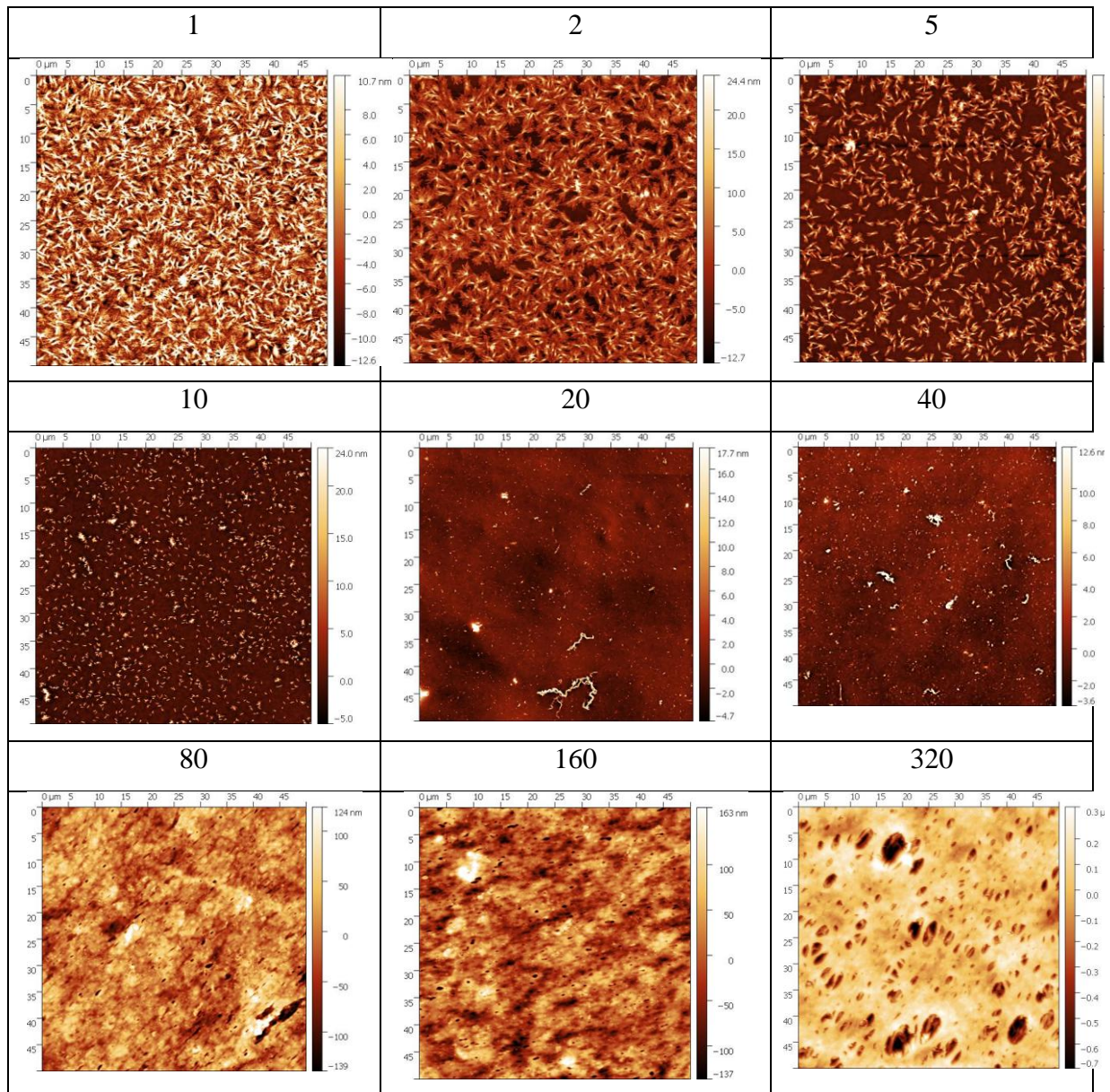


Figure SM 2: AFM images of thin film obtained by dip coating a PLLA 323K solution in dioxane DCE at different withdrawal speeds from 1 to 320 mm.min⁻¹. The withdrawal speeds in mm.min⁻¹ are indicated above the images.

Figure SM 3: AFM of PLLA 323K in DCE

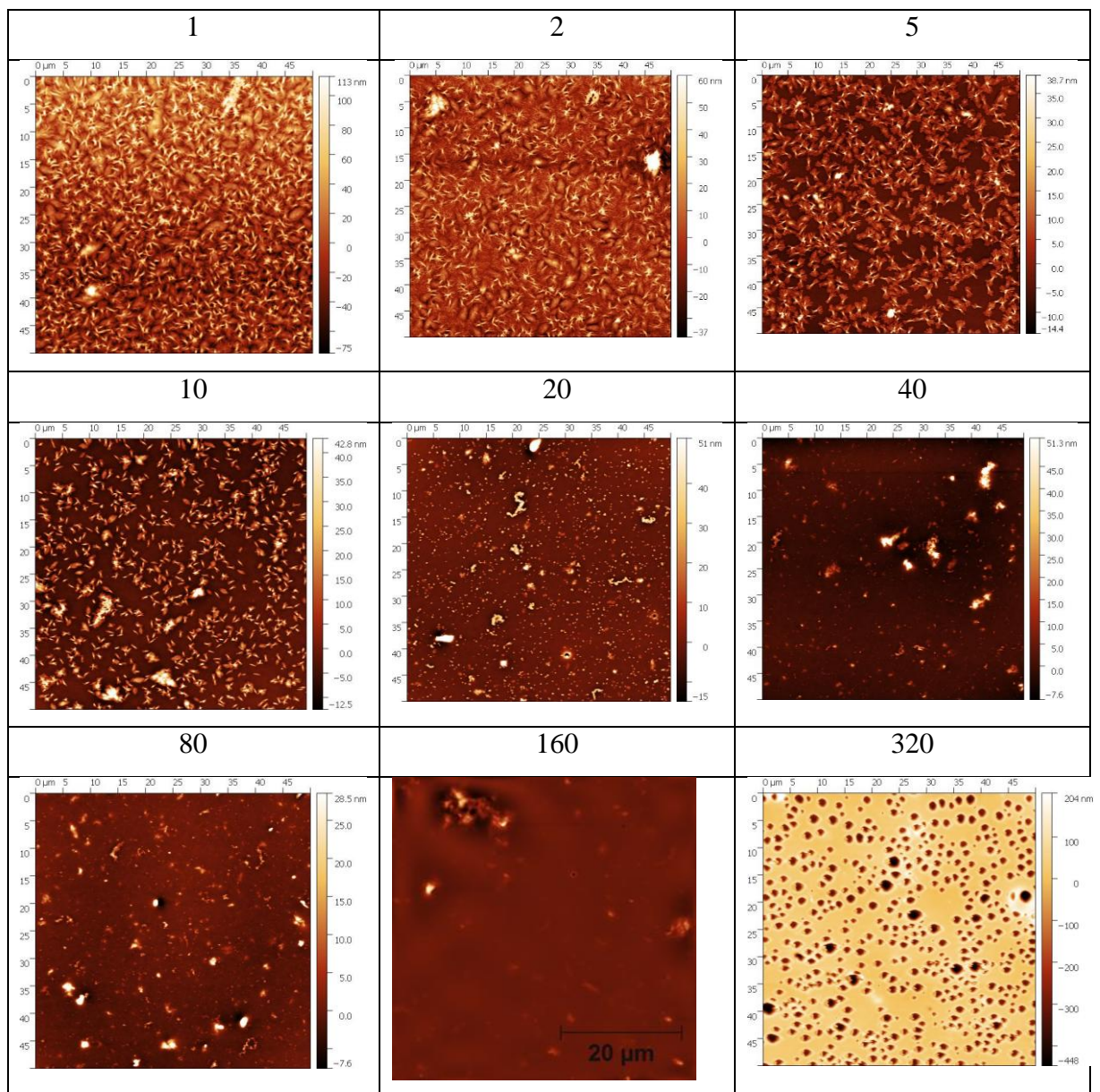


Figure SM 3: AFM images of thin film obtained by dip coating a PLLA 323K solution in DCE at different withdrawal speeds from 1 to 320 $\text{mm}\cdot\text{min}^{-1}$. The withdrawal speeds in $\text{mm}\cdot\text{min}^{-1}$ are indicated above the images.

Figure SM 4: AFM of PLLA 100K in DCM

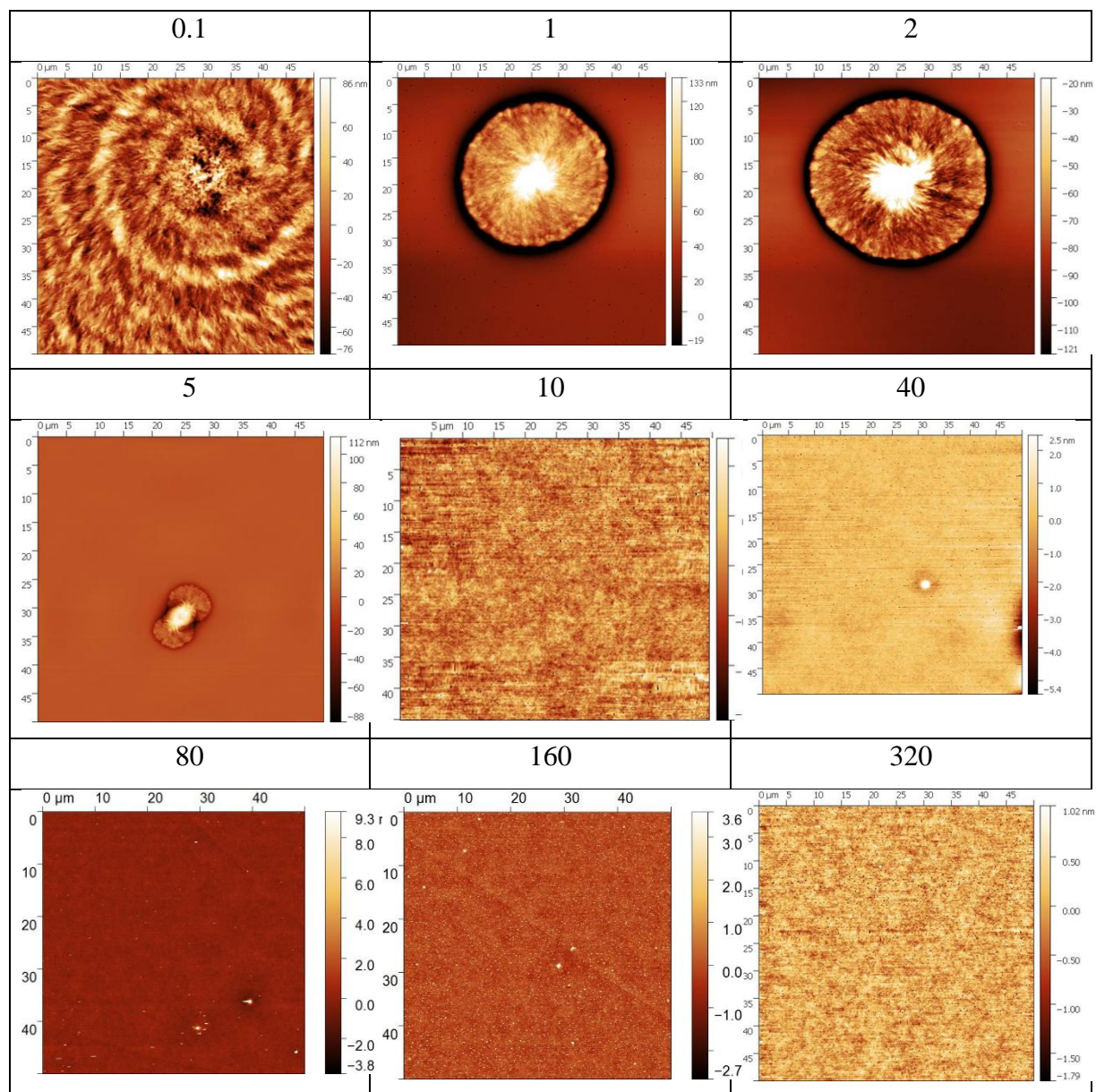


Figure SM 4: AFM images of thin film obtained by dip coating a PLLA 100K solution in DCM at different withdrawal speeds from 0.1 to 320 mm.min⁻¹. The withdrawal speeds in mm.min⁻¹ are indicated above the images

Figure SM 5: AFM of PLLA 323K in DCM

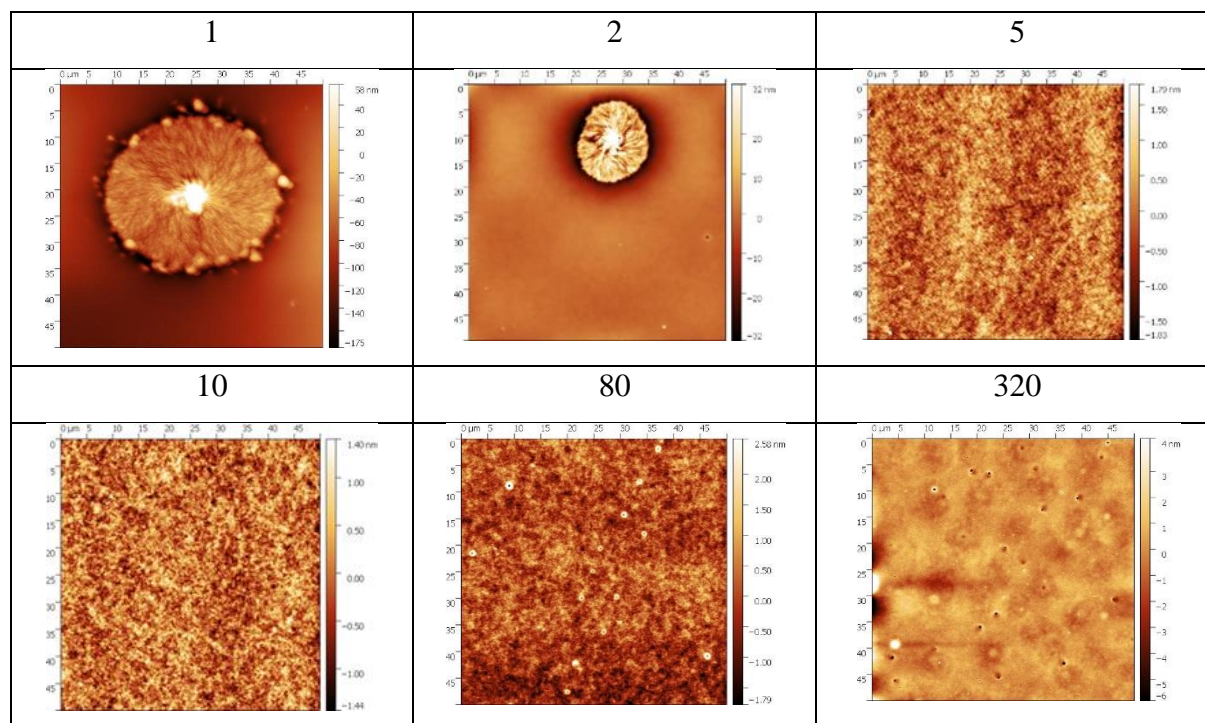


Figure SM 5: AFM images of thin film obtained by dip coating a PLLA 323K solution in DCM at different withdrawal speeds from 1 to 320 mm.min⁻¹. The withdrawal speeds in mm.min⁻¹ are indicated above the images

Figure SM 6: optical microscope image of PLLA 323K in dioxane at 320 mm.min⁻¹

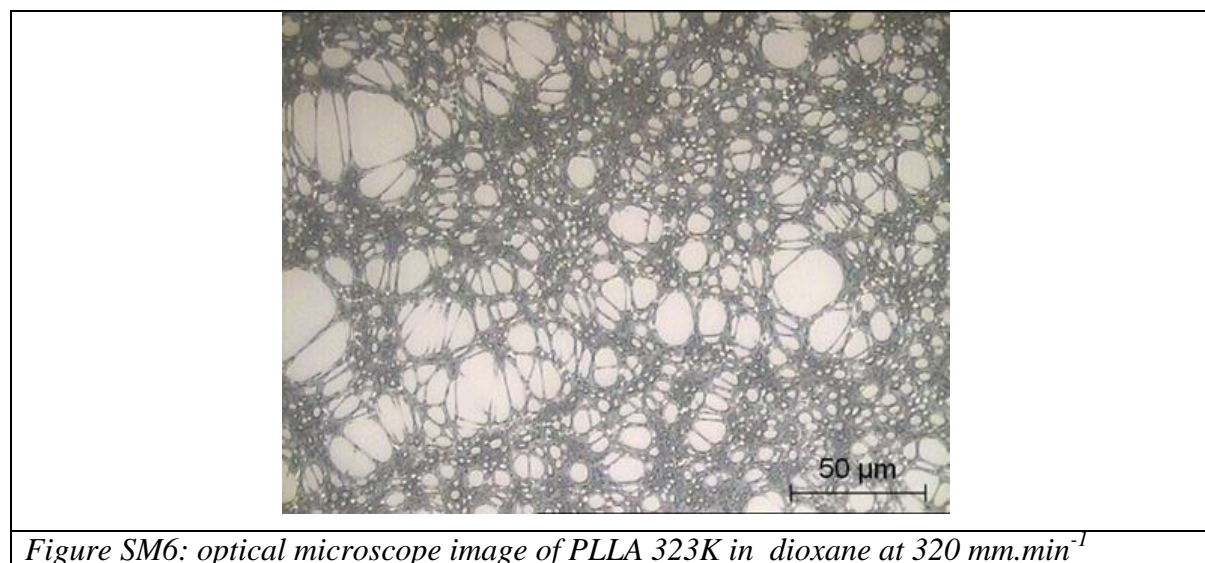
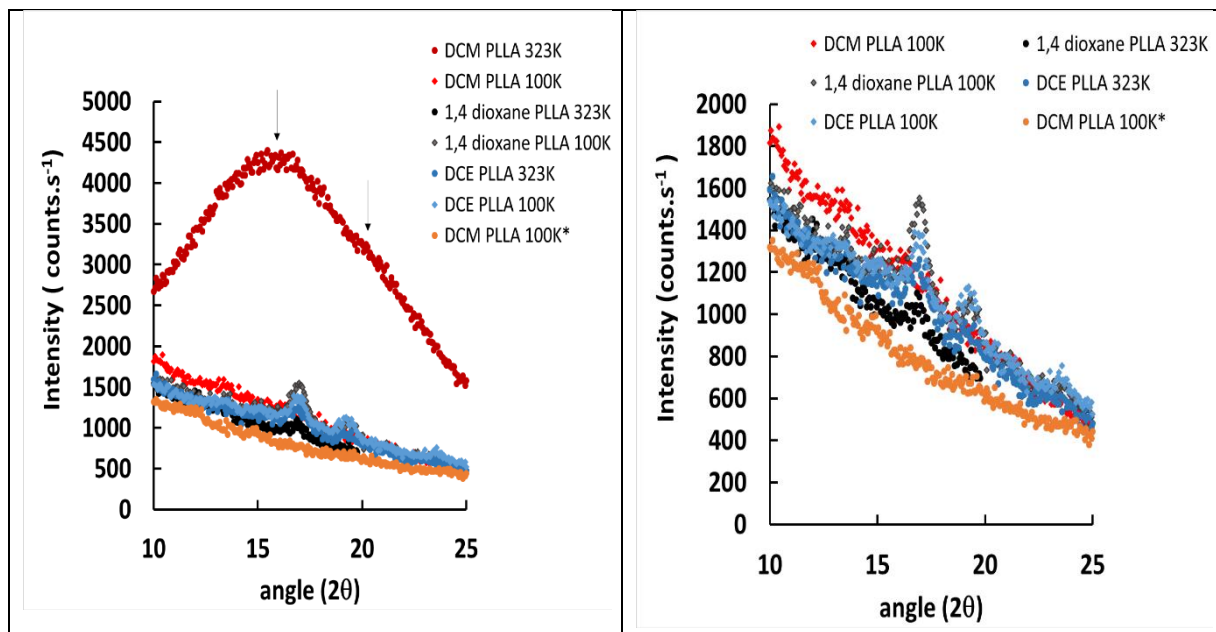


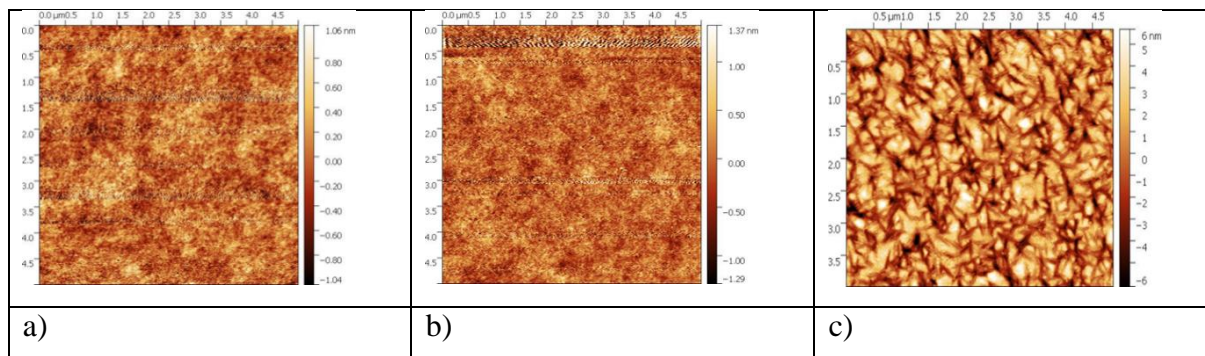
Figure SM6: optical microscope image of PLLA 323K in dioxane at 320 mm.min⁻¹

Figure SM 7: GIXRD diffractograms of the films of PLLA thin films obtained by dip coating solution in DCE, dioxane or DCM



*Figure SM7: GIXRD diffractograms of the films of PLLA thin films obtained by dip coating solution in DCE, dioxane or DCM at 1 mm.min⁻¹ (except DCM PLLA 100K * obtained at 320 mm.min⁻¹). Raw data of the figure 6.*

Figure SM 8: AFM images of thin films of PLLA 100K DCE v=160 mm.min⁻¹ as a function of annealing steps



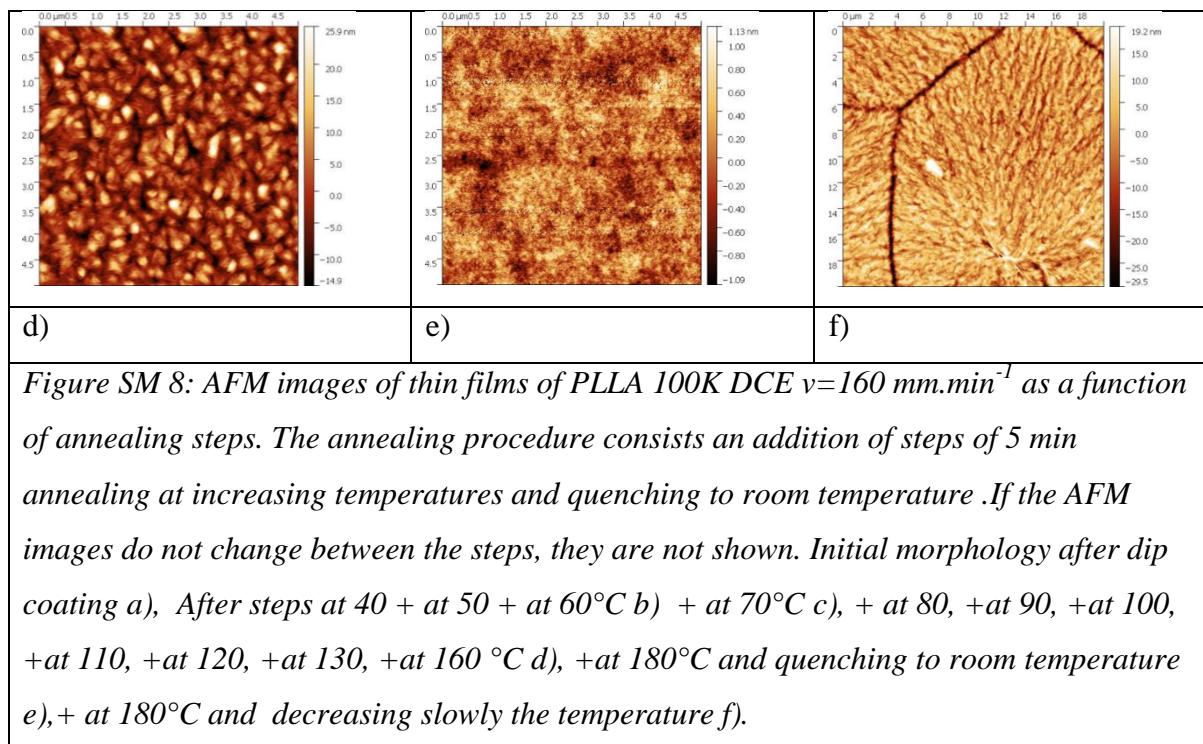


Figure SM 9: GIXRD diffractograms of the films of PLLA thin films obtained by dip coating solution in DCE, dioxane or DCM

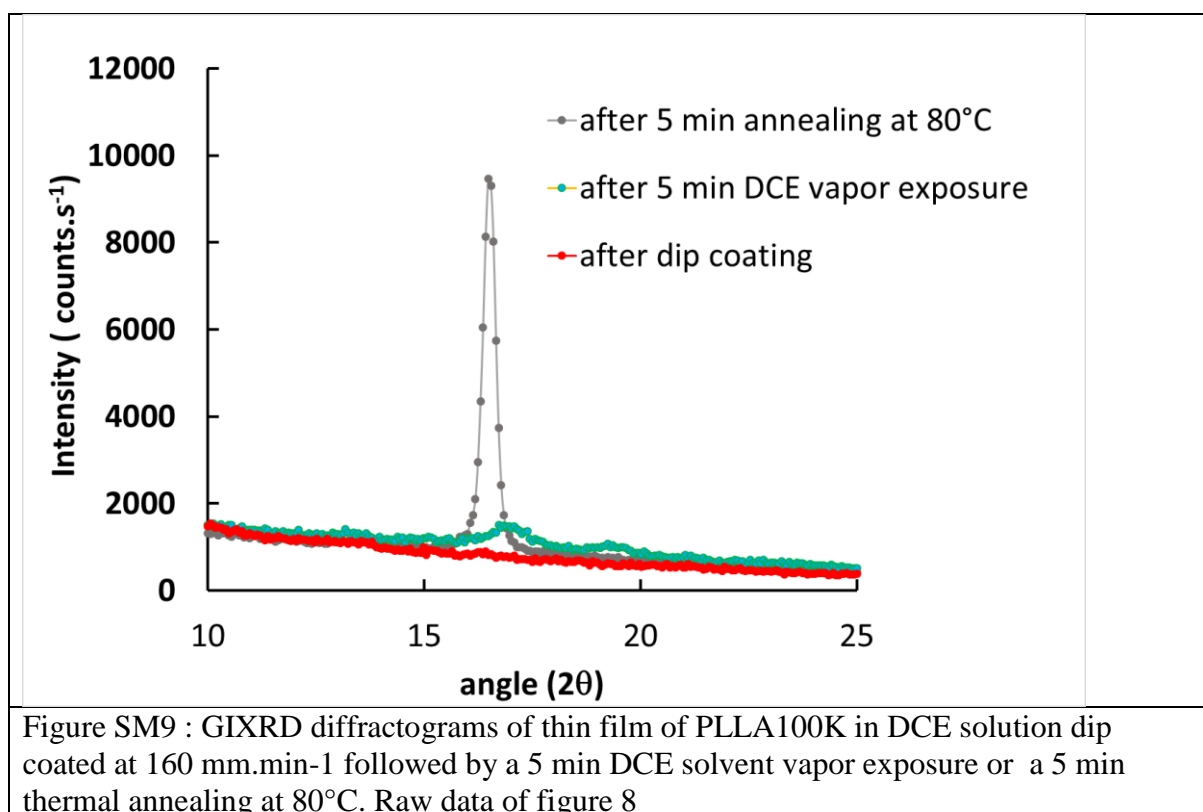


Figure SM10: AFM images of thin films of PLLA 100K DCE $v=80 \text{ mm}\cdot\text{min}^{-1}$ as a function of solvent exposure annealing steps

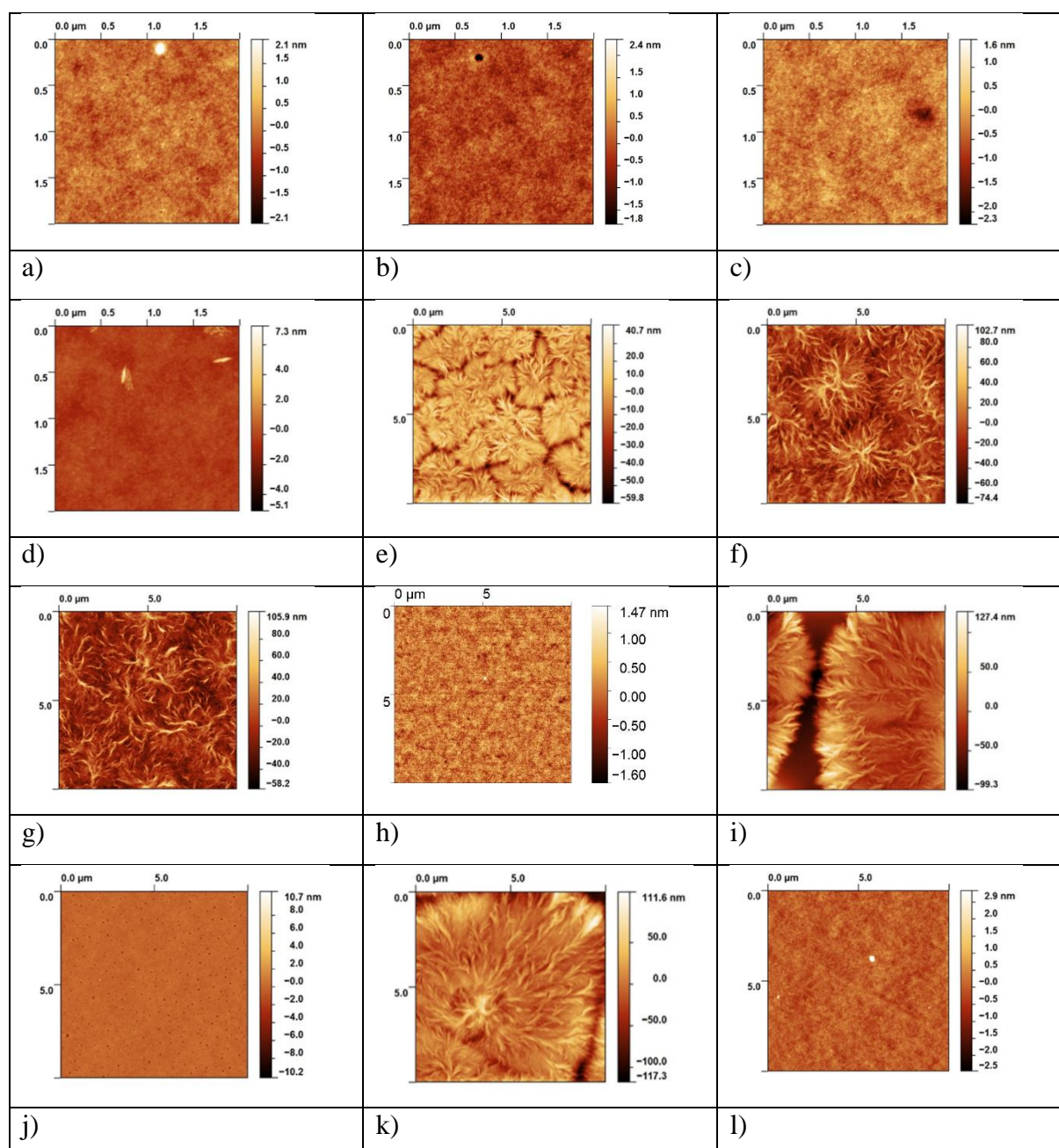


Figure SM10: AFM images of thin films of PLLA 100K DCE $v=80 \text{ mm}\cdot\text{min}^{-1}$ as a function of solvent exposure annealing steps. The procedure consists an addition of steps of solvent exposure. If the AFM images do not change between the steps, they not shown.

Initial state a), After 30s b), + 30s+1min c), + 1 min d), + 2 min e), +3+4+5+7 min f), +15+30 min DCE g), +5min DCM h), +5min DCE i), +5min DCM j), +5min DCE exposures k), for comparison after 5 min DCM exposure.

Figure SM 11: AFM images of spin coated thin films of PLLA

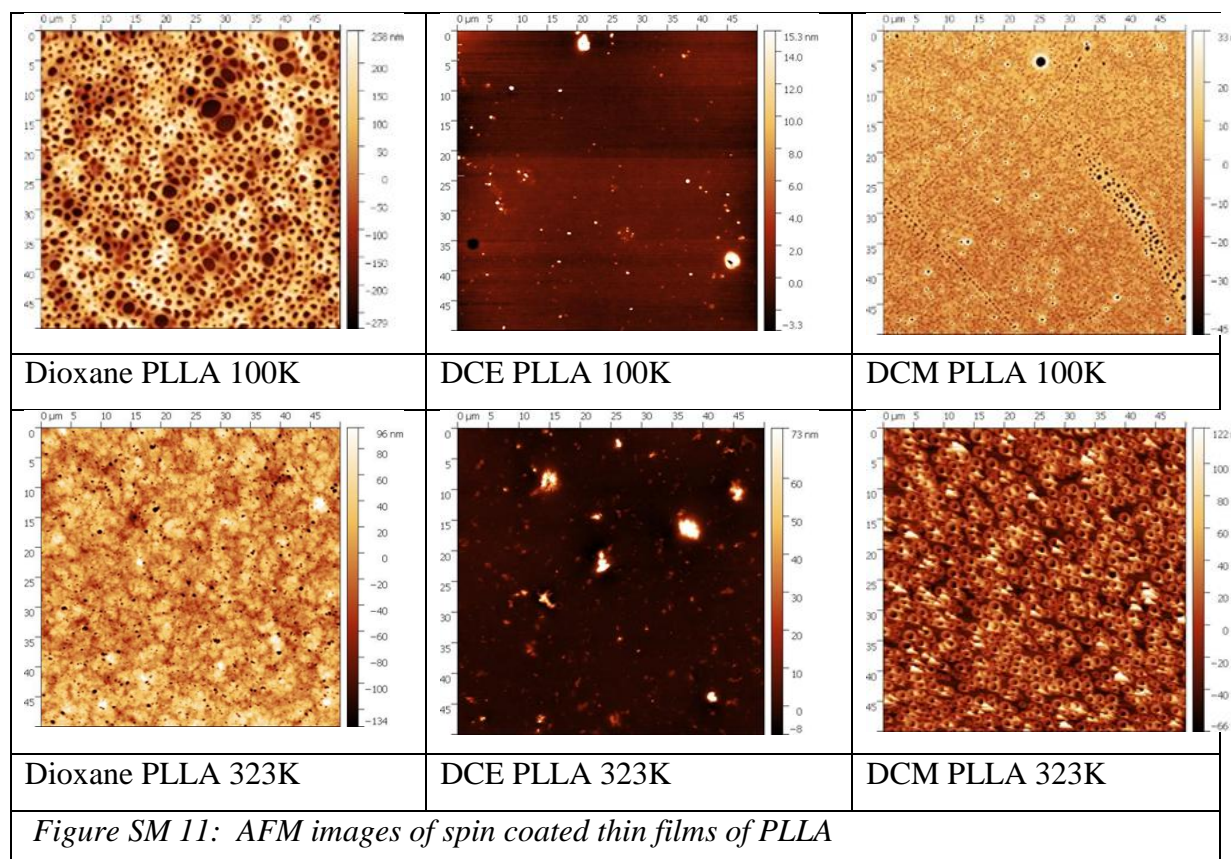


Figure SM 12: AFM of thin film obtained by dip coating of solution of PLLA 100K, in DCE and DCM at withdrawal rate of $2 \text{ mm}\cdot\text{min}^{-1}$

