**Electronic Supplementary Information**

**Protegrin interaction with lipid monolayers: Grazing incidence X-ray diffraction and X-ray reflectivity study**

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## 1.Example of Bragg rod and Bragg peak profiles

*(Top)* Bragg rod profiles.
Top left profile is of the Bragg rod profile corresponding to the $\{11\}^a$ lattice and the top right profile corresponds to the $\{02\}^a$ lattice. The sharp peak observed around $q_z$, = 0.01 A$^{-1}$ is due to interference of rays diffracted down and subsequently reflected back up by the interface. The $\{11\}^a$ lattice Bragg rod data were fitted with a Gaussian to determine the maximum rod value which was used to calculate the tilt value. In this case the

*(Bottom)*
Corresponding Bragg peak profile.

The *(h,k)* reflection assignment is indicated on the two data sets.
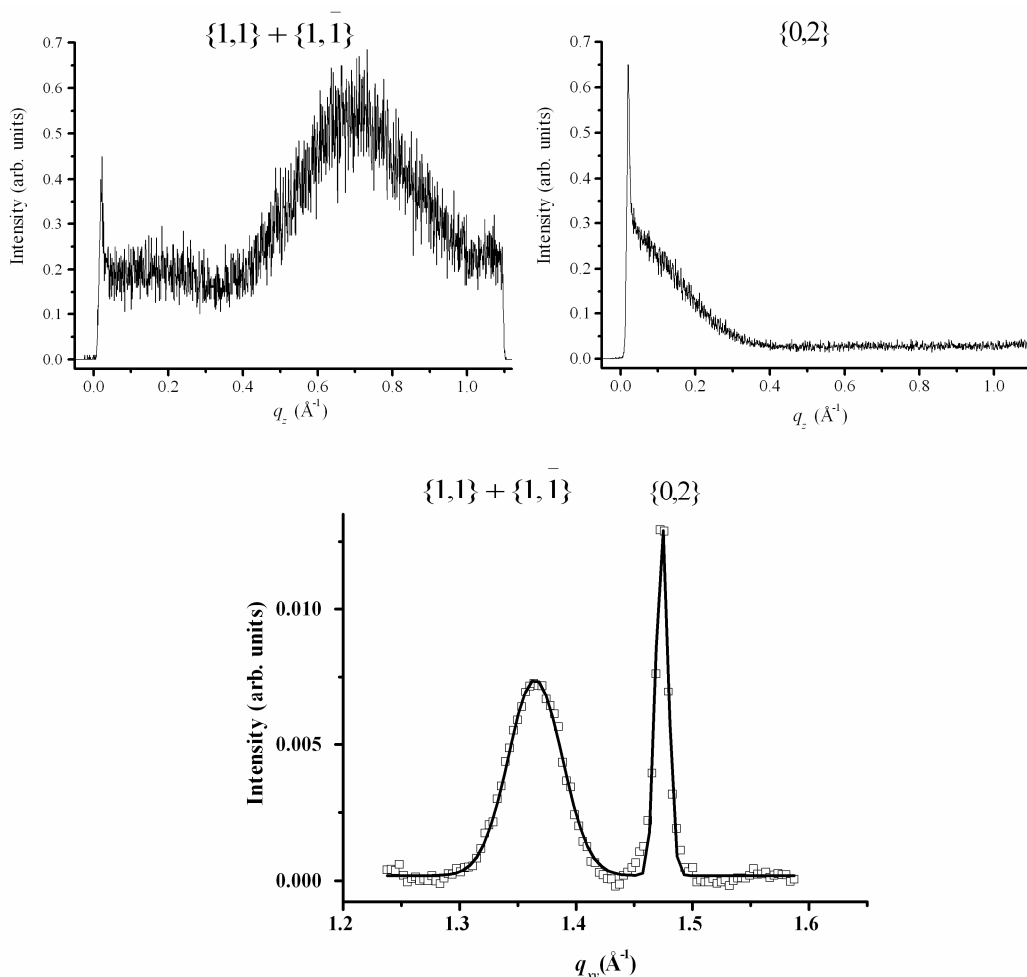


**Fig.S1.** Grazing incidence X-ray diffraction spectrum of DPPC monolayer at 30 mN m$^{-1}$ surface pressure over Dulbecco's phosphate buffered saline solution.

[a] "11" and "02" are used to denote (*hk*) for a set of Bragg rods with equal in-plane components which cannot be resolved from the GIXD data. In this case data are calculated using the rectangular unit cell, thus {11} lattice means {(11), (1ī), (ī1), (ī ī)} and {02} means {(02), (0$\bar{2}$)}.

## 2. Comparison of $L_1$ XR fitting values and those obtained from tilt angles

| Experiment | $L_1$ /Å (XR fitting) | Roughness$_{L1}$ $\sigma$ /Å | Tilt ($^{O}$) | $L_1$ /Å (from tilt angle |
|---|---|---|---|---|
| DPPC 20 mN m$^{-1}$ | 12.6 | 4.0 | 49 | 12.6 |
| DPPC 20 mN m$^{-1}$ + PG-1 | 12.5 | 4.2 | 29 | 16.6 |
| DPPG 20 mN m$^{-1}$ | 13.9 | N/A | 33 | 16.1 |
| DPPC 30 mN m$^{-1}$ | 15.2 | 3.3 | 30 | 16.6 |
| DPPC 30 mN m$^{-1}$ + PG-1 | 16.1 | 5.5 | 30 | 16.6 |
| DPPG 30 mN m$^{-1}$ | 18.1 | 3.7 | 27 | 17.1 |
| DPPG 30 mN m$^{-1}$ + PG-1 | 14.9 | 5.2 | 32 | 16.3 |