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Supporting Information

Special features of monolayer characteristics of N-alkanoyl substituted threonine amphiphiles

D. Vollhardt*, C. Stefaniu and G. Brezesinski

Max Planck Institute of Colloids and Interfaces, D-14424 Potsdam/Golm, Germany

C16-D; Characterization information to N-palmitoyl-D-threonine

Melting point: 83 -85 °C
Elemental analysis: C – calc. 67.19%, obs. 67.00%
H – calc. 10.99%, obs. 11.23%
N – calc. 3.92%, obs. 3.50%
Optical rotation: α – calc. -6°, obs. -6.17°

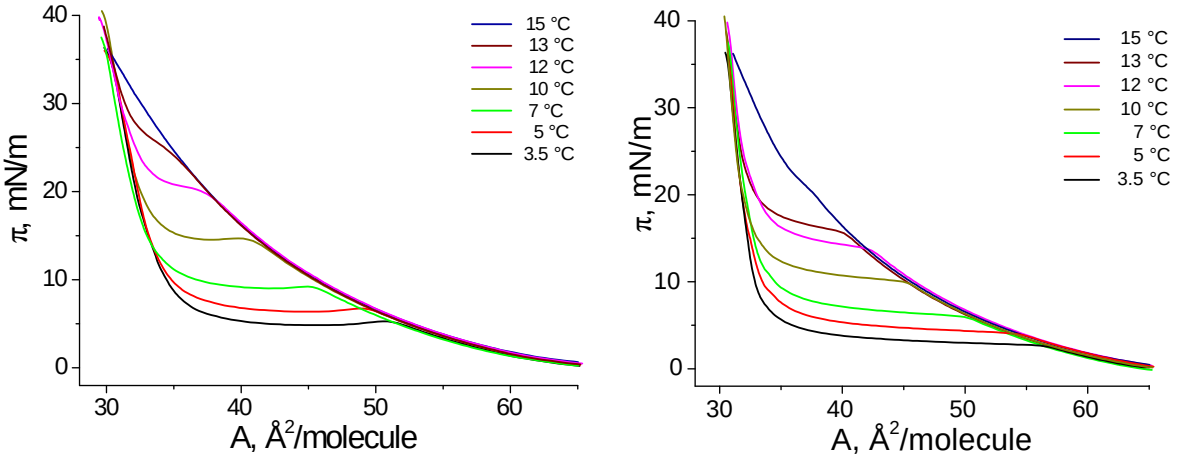

Figure S1. π-A curves of the enantiomeric N-palmitoyl-D-threonine monolayers spread on pH 3 water measured in the temperature range between 3.5 and 15°C; (left) at compression and (right) at decompression.

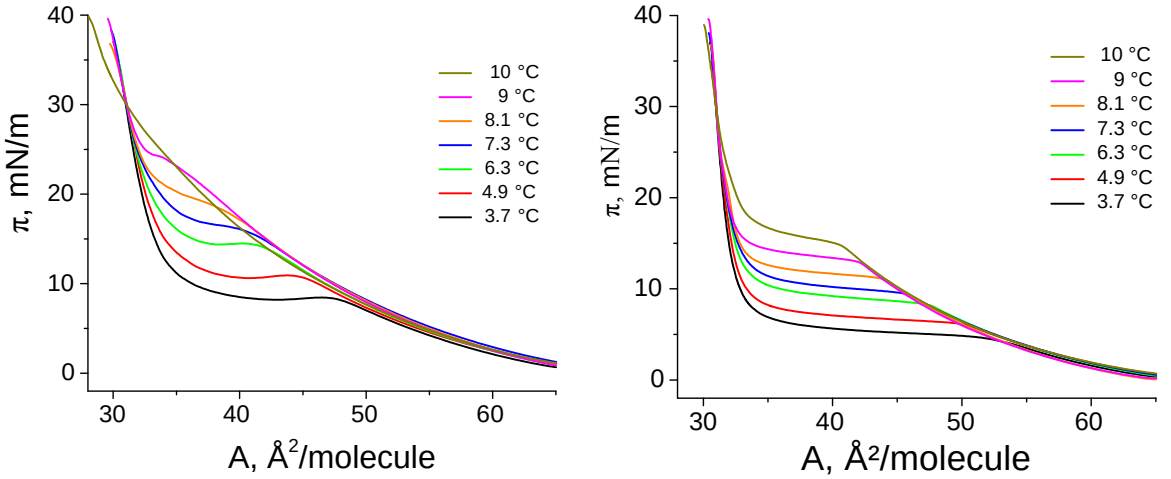

Figure S2. π-A curves of the racemic N-palmitoyl-DL-threonine monolayers spread on pH 3 water measured in the temperature range between 3.7 and 10°C; (left) at compression and (right) at decompression.

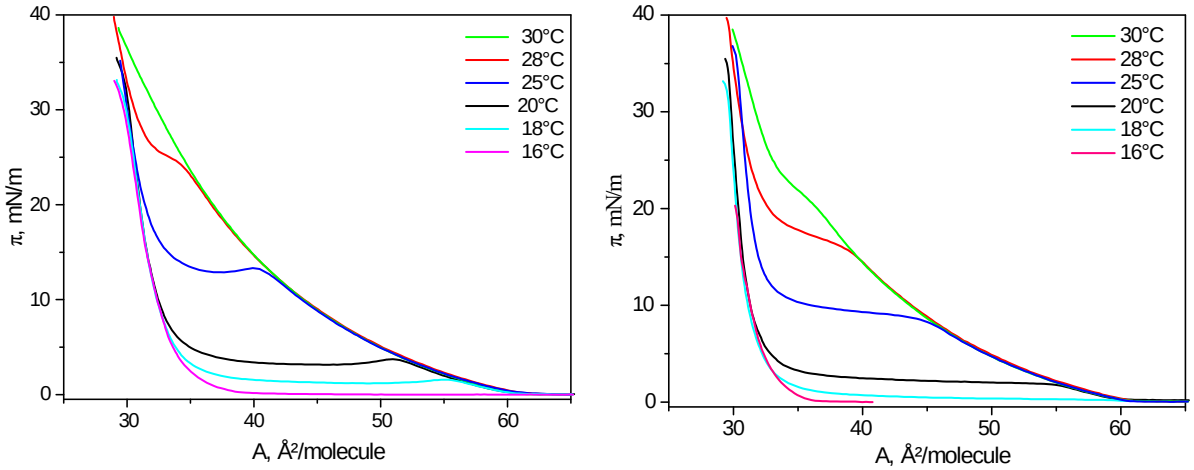

Figure S3. π-A curves of the enantiomeric N-stearoyl-D-threonine monolayers spread on pH 3 water measured in the temperature range between 16 and 30°C; (left) at compression and (right) at decompression.

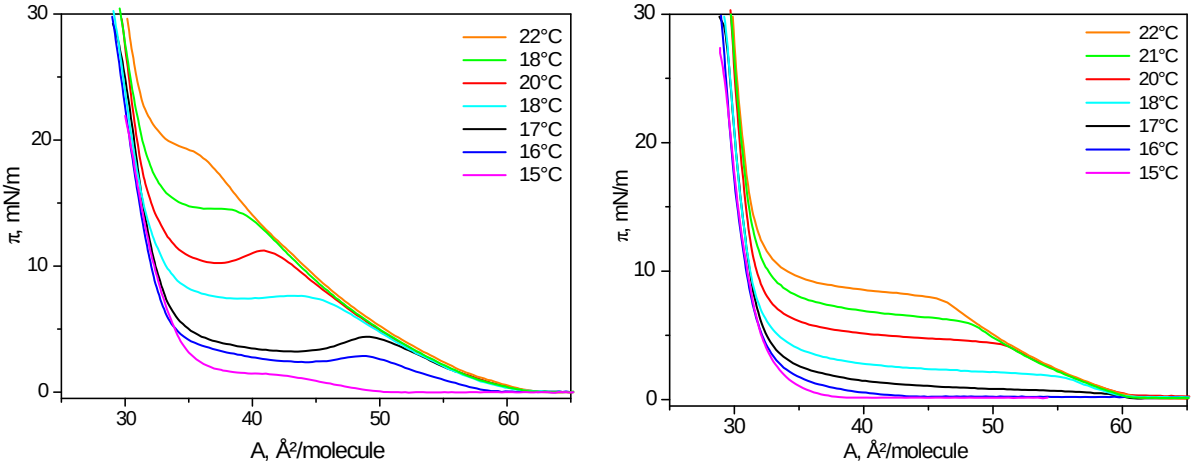

Figure S4. π-A curves of the racemicc N-stearoyl-DL-threonine monolayers spread on pH 3 water measured in the temperature range between 15 and 22°C; (left) at compression and (right) at decompression.

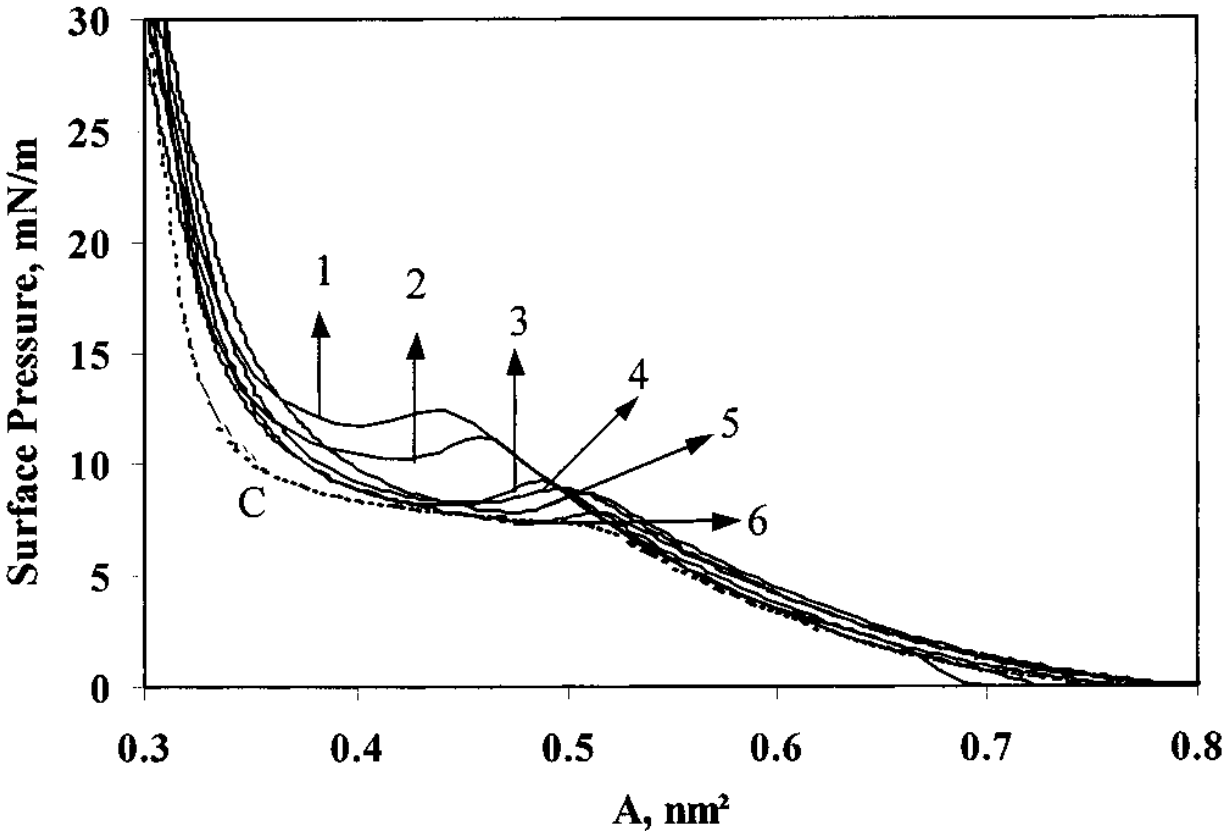

Figure S5. Dynamic surface tension for the compressed monolayers of palmitoyl-D-allothreonin methylester at 5 °C and dA/dt) 0.033 nm^2/s (curve 1), 0.017 nm^2/s (curve 2), 0.0017 nm^2/s (curve 3), 0.000 83 nm^2/s (curve 4), 0.000 42 nm^2/s (curve 5), and 0.000 17 nm2/s (curve 6). The dashed line corresponds to the slow expansion of the condensed monolayer at the initial compression rate dA/dt) 0.017 nm^2/s. Adapted from Fig.1 in ref. [31].

Table S1a. Bragg Peak and Rod Positions and the Corresponding Full-Widths at Half-Maximum of the Enantiomeric *N*- palmitoyl-*L*-threonine Monolayers and Lattice Parameters of the Monolayers at different lateral pressures and 2.5 °C

Bragg Parameters

π, mN/m	Q_{xy}, $Å^{-1}$	Q_z, $Å^{-1}$	Q_{xy}, $Å^{-1}$	Q_z, $Å^{-1}$	Q_{xy}, $Å^{-1}$	Q_z, $Å^{-1}$
5	1.398 0.008	0.649 0.30	1.336 0.008	0.471 0.30	0.976 0.020	1.120 0.30
10	1.402 0.010	0.673 0.31	1.338 0.008	0.448 0.31	0.981 0.016	1.121 0.31
25	1.401 0.011	0.656 0.32	1.338 0.009	0.462 0.32	0.981 0.037	1.118 0.32
35	1.405 0.012	0.653 0.31	1.341 0.007	0.456 0.30	0.981 0.070	1.109 0.31

Lattice Parameters

π, mN/m	a, b, c, Å	α, β, γ, °	d	t, °	A_{xy}, $Å^2$	A_0, $Å^2$
5	4.930 6.749 7.062	138.2 114.3 107.5	0.3958	48.9	31.7	20.8
10	4.922 6.714 7.035	138.1 114.4 107.4	0.3934	48.8	31.5	20.7
25	4.924 6.716 7.032	138.1 114.4 107.5	0.3928	48.7	31.5	20.8
35	4.910 6.712 7.032	138.2 114.4 107.4	0.3954	48.5	31.4	20.8

Table S1b. Bragg Peak and Rod Positions and the Corresponding Full-Widths at Half-Maximum of the Racemic *N*- Palmitoyl-*DL*-threonine Monolayers and Lattice Parameters of the Monolayers at 10 and 25 mN/m and 2.5 °C

Bragg Parameters

π, mN/m	Q_{xy}, $Å^{-1}$	Q_z, $Å^{-1}$	Q_{xy}, $Å^{-1}$	Q_z, $Å^{-1}$
10	0.996 0.024	1.188 0.35	1.370 0.009	0.594 0.35
25	1.000 0.039	1.162 0.35	1.372 0.012	0.581 0.35

Lattice Parameters

π, mN/m	a ,b=c , Å	α, β=γ, °	d	t, °	A_{xy}, $Å^2$	A_0, $Å^2$
10	4.923 6.772	137.4 111.3	0.3729	50.0	31.1	20.0
25	4.918 6.747	137.2 111.4	0.3703	49.3	30.9	20.1

Table S2a. Bragg Peak and Rod Positions and the Corresponding Full-Widths at Half-Maximum of the Enantiomeric *N*- Stearoyl-*L*-threonine Monolayers and Lattice Parameters of the Monolayers at Different Lateral Pressures and 10 °C.

Bragg Parameters

π, mN/m	Q_{xy}, $Å^{-1}$	Q_z, $Å^{-1}$	Q_{xy}, $Å^{-1}$	Q_z, $Å^{-1}$	Q_{xy}, $Å^{-1}$	Q_z, $Å^{-1}$
5	0.976 0.029	1.16 0.33	1.337 0.010	0.48 0.33	1.398 0.011	0.68 0.33
10	0.978 0.031	1.12 0.30	1.337 0.008	0.46 0.30	1.399 0.011	0.66 0.30
20	0.982 0.036	1.13 0.33	1.341 0.011	0.49 0.32	1.405 0.015	0.64 0.32
30	0.986 0.041	1.13 0.33	1.342 0.012	0.48 0.33	1.409 0.019	0.65 0.33

Lattice Parameters

π, mN/m	a, b, c, Å	α, β, γ, °	d	t, °	A_{xy}, $Å^2$	A_0, $Å^2$
5	4.928 6.751 7.059	138.3 114.2 107.5	0.3960	49.8	31.7	20.5
10	4.928 6.737 7.049	138.2 114.3 107.5	0.3946	49.0	31.7	20.8
20	4.911 6.706 7.026	138.2 114.4 107.4	0.3945	49.0	31.4	20.6
30	4.904 6.675 7.008	138.1 114.6 107.3	0.3928	48.9	31.3	20.5

Table S2b. Bragg Peak and Rod Positions and the Corresponding Full-Widths at Half-Maximum of the Racemic *N*- Stearoyl-*DL*-threonine Monolayers and Lattice Parameters of the Monolayers at Different Lateral Pressures and 10 °C.

Bragg Parameters

π, mN/m	Q_{xy}, $Å^{-1}$	Q_z, $Å^{-1}$	Q_{xy}, $Å^{-1}$	Q_z, $Å^{-1}$
5	0.995 0.032	1.18 0.33	1.367 0.009	0.59 0.33
10	1.003 0.052	1.18 0.33	1.367 0.010	0.59 0.33
25	1.004 0.050	1.20 0..33	1.372 0.013	0.60 0.33
30	0.999 0.037	1.2 0.33	1.371 0.014	0.60 0.33

Lattice Parameters

π, mN/m	a ,b=c , Å	α, β=γ, °	d	t, °	A_{xy}, $Å^2$	A_0, $Å^2$
5	4.935, 6.780	137.3, 111.3	0.3717 NNN	49.9 NNN	31.2	20.1
10	4.941, 6.734	137.0, 111.5	0.3637 NNN	49.6 NNN	31.0	20.0
25	4.921, 6.724	137.1, 111.5	0.3663 NNN	50.1 NNN	30.8	19.8
30	4.921, 6.754	137.3, 111.4	0.3706 NNN	50.2 NNN	30.9	19.8