Supporting Information for

Interaction of the neurotransmitter, neuropeptide Y (NPY), with phospholipid membranes: Film balance and fluorescence microscopy studies

Martina Dyck[1] *and Mathias Lösche*[2,3,*]

University of Leipzig, Institute of Experimental Physics I, D–04103 Leipzig, Germany,

Carnegie Mellon University, Department of Physics, Pittsburgh, PA 15213-3890, USA, and

CNBT Consortium, NIST Center for Neutron Research, Gaithersburg, MD 20899-8562, USA

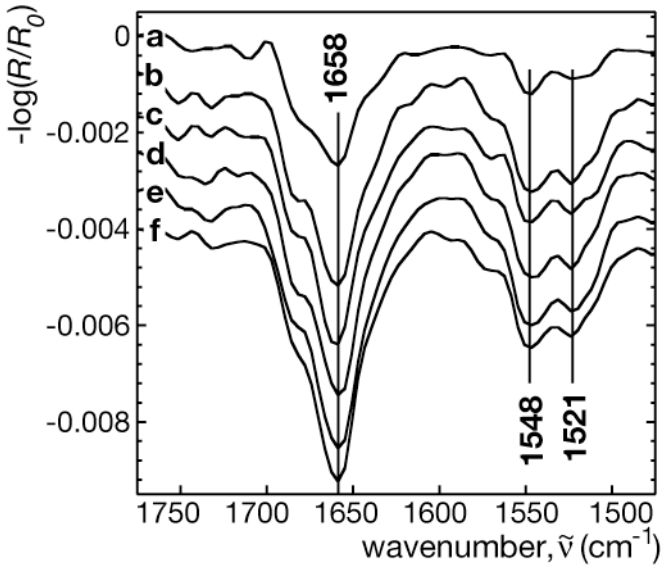

Figure S1: Amide region of external Fourier-transform infrared reflection-absorption spectra (FT-IRRA; p-polarization, incident angle, α_i = 40°, T = 20°C) of a hNPY film on a water subphase at various states of compression (a: π = 0 mN/m, b: 8 mN/m, c: 12 mN/m and d: 16 mN/m). The FT-IRRA spectra show a strong, narrow absorption band at 1658 cm^{-1}, the amide I mode, which is mainly associated with the C=O stretching mode of the peptide backbone. The position of this band is conformationally sensitive[1] and indicates that hNPY adopts an α-helical secondary structure at the air/water interface. In addition, the amide II band at 1548 cm^{-1} also indicates an α-helical structure. The amide I band shows a high-frequency shoulder (~1685 cm^{-1}) that may arise from a turn or a loop in the peptide.[1] Since hNPY has 5 tyrosine residues, the band in the amide II region at ~ 1520 cm^{-1} can be attributed to C–H in-plane bending and C–C stretching vibrations of tyrosine.[2] Since there is no amide I absorption detected near 1630 cm^{-1}, it is rather unlikely that the band at 1520 cm^{-1} should be attributed to a β-sheet conformation.

The data have been collected in collaboration with Andreas Kerth and Alfred Blume at the Institute of Physical Chemistry at the Martin Luther University in Halle, Germany. A full account of this work will be presented elsewhere.[3]

REFERENCES

(1) Goormaghtigh, E.; Cabiaux, V.; Ruysschaert, J.-M. Determination of Soluble and Membrane Protein Structure by Fourier Transform Infrared Spectroscopy. In *Physico-chemical Methods in the Study of Biomembranes*; Hilderson, H. J., Ralston, G. B., Eds.; Plenum Press, 1994; pp 405.

(2) Barth, A. *Progress in Biophysics and Molecular Biology* **2000**, *74*, 141.

(3) Dyck, M.; Kerth, A.; Blume, A.; Lösche, M. *J. Phys. Chem. B* **2006**, submitted.