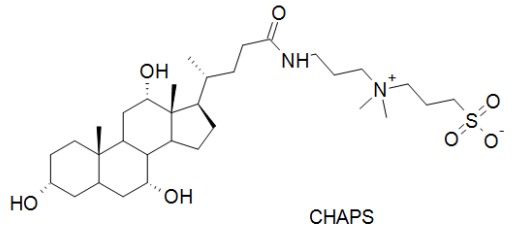
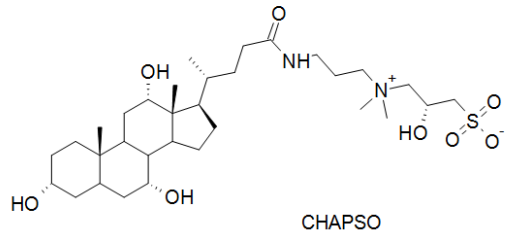


CHAPS

(3-[(3-cholamidopropyl)dimethylammonio]-1-propanesulfonate).



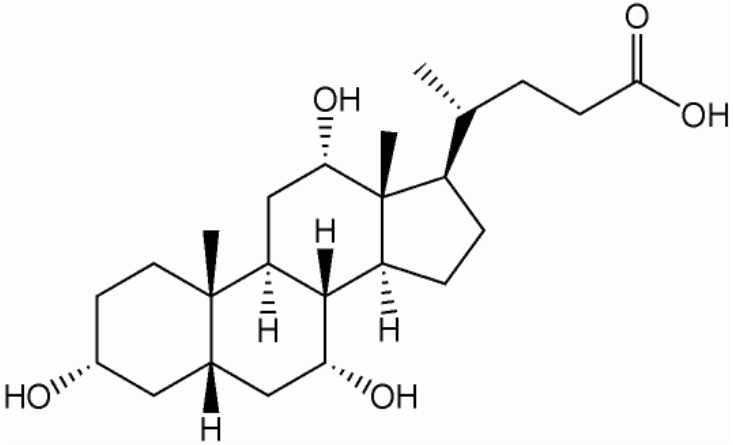
CHAPSO

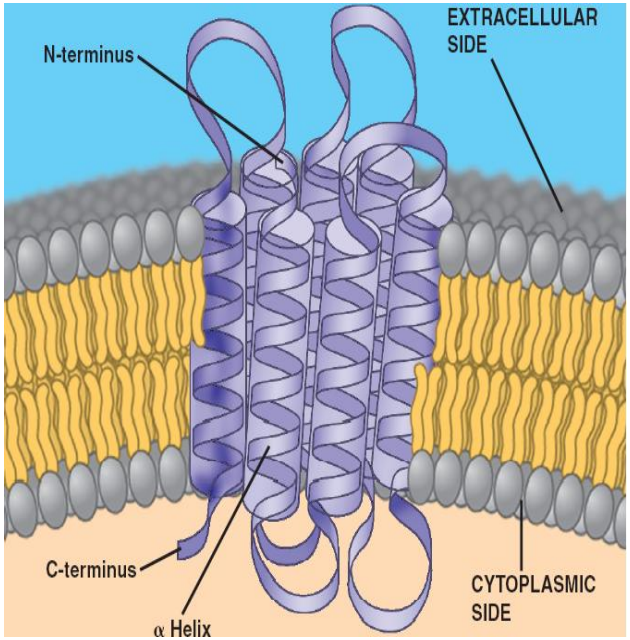
3-[(3-cholamidopropyl)dimethylammonio]-2 hydroxyl-1-propanesulfonate

CHAPS/CHAPSO

By Martial Fotso and Amanda Vo

History and Description

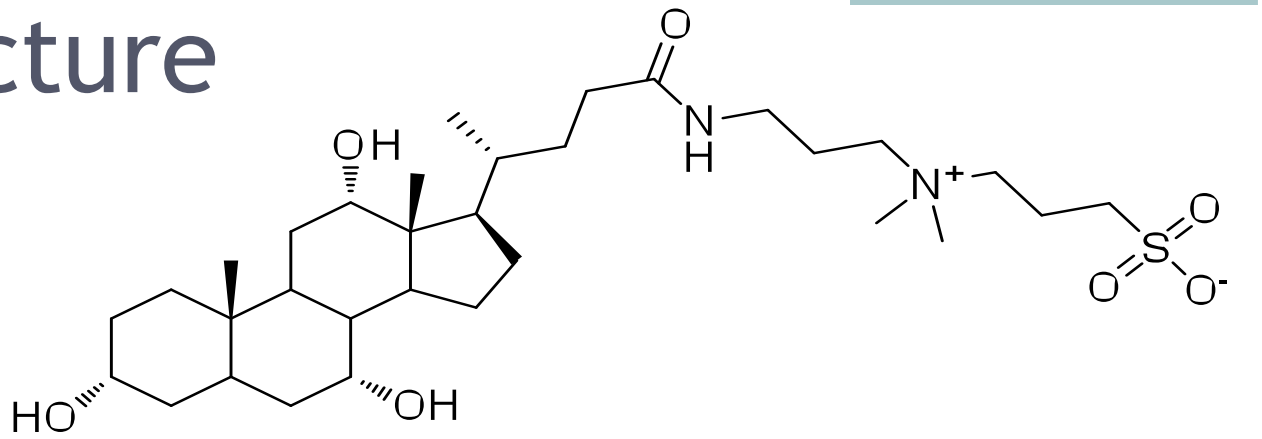




- Cholic acid derivative
- Small pH range in which net charge is present
- Mild surfactant
- Does not affect protein charge
- 1980s used in protein purification

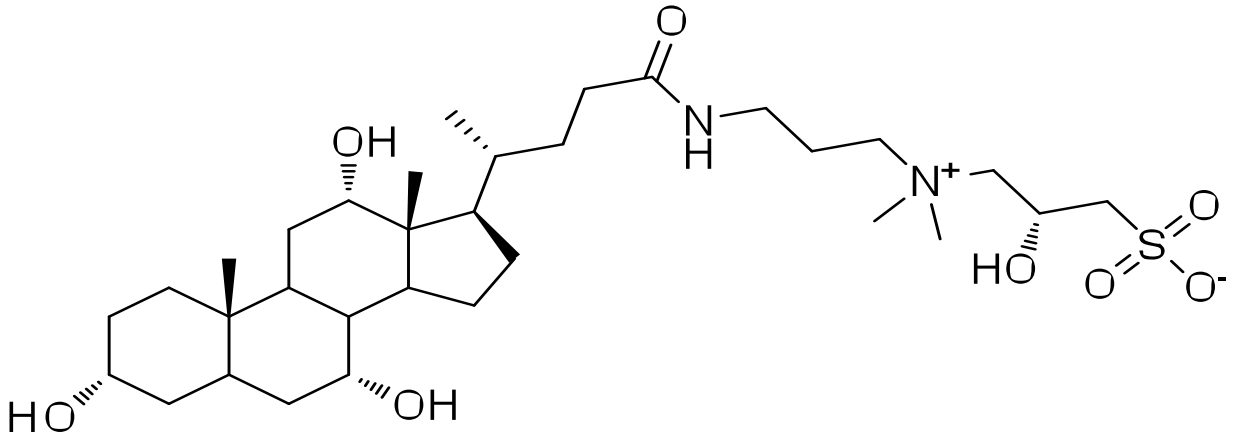
Qin X., Liu M., Daiwen Yang D., and Zhang X. Concentration-Dependent Aggregation of CHAPS Investigated by NMR Spectroscopy. *J. Phys. Chem* **2010**, *114*, 3863–3868.
Biology 1152, http://www.bio1152.nicerweb.net (Accessed March 6 2012)
Wikipedia , http://www.en.wikipedia.org (Accessed March 6 2012)

Structure



CHAPS

(3-[(3-cholamidopropyl)dimethylammonio]-1-propanesulfonate).



CHAPSO

3-[(3-cholamidopropyl)dimethylammonio]-2 hydroxyl-1-propanesulfonate

Uses

- Protein solubilization
- Disaggregation
- Eluting agent during hydrophobic interaction chromatography

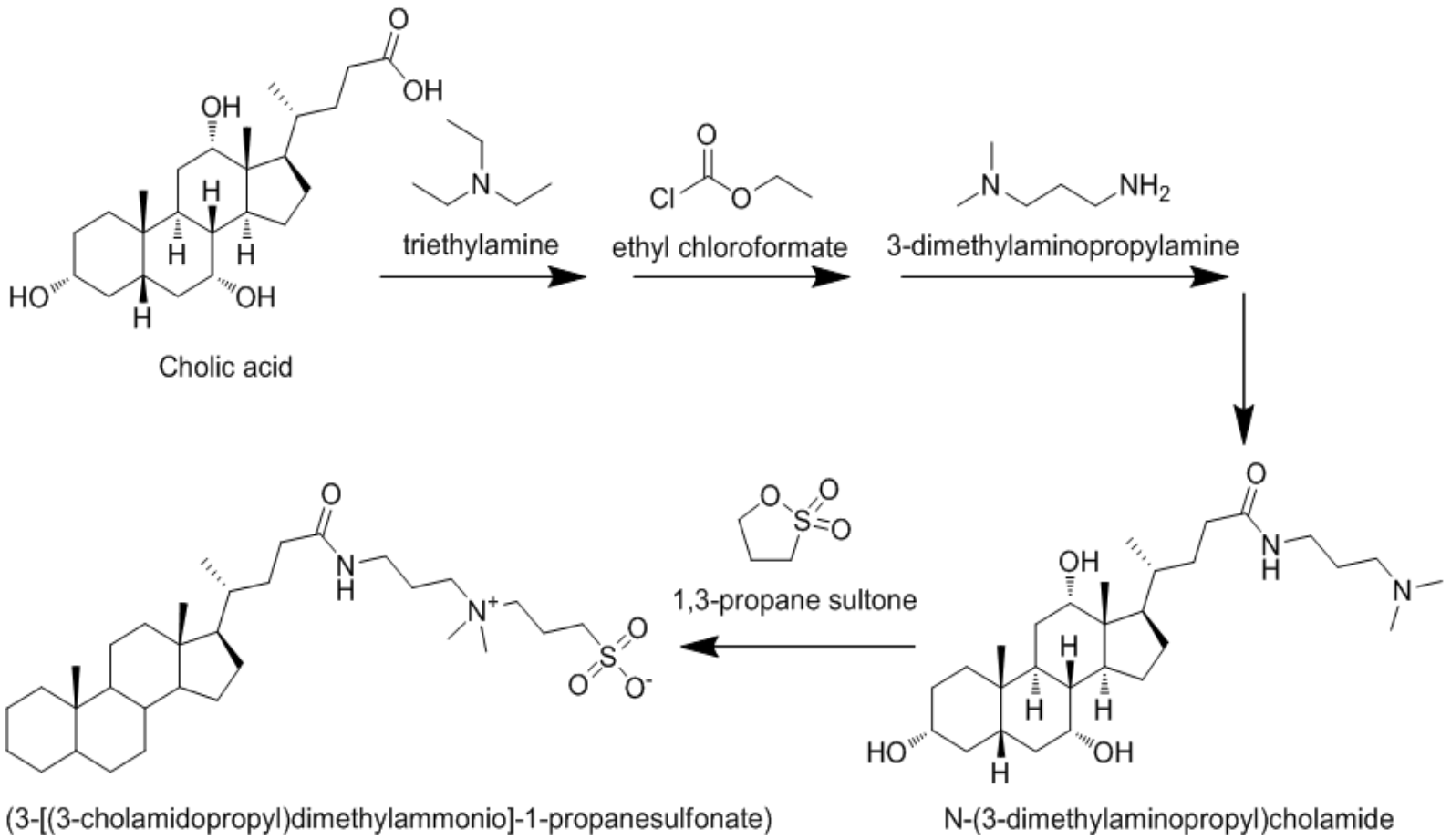
Giacomelli C., Arnouldus W. P., Vermeer, and Norde W. Micellization and Adsorption Characteristics of CHAPS, *Langmuir* **2000**, *16*, 4853-4858.
EMP Genetech, http://www.empgenetech.com (Accessed March 6 2012)

Hazards of CHAPS

- Reactive with oxidizing reagents and acids
- Slightly combustible and should be kept away from flame
- Minimal skin contact
- Do not ingest (obviously)

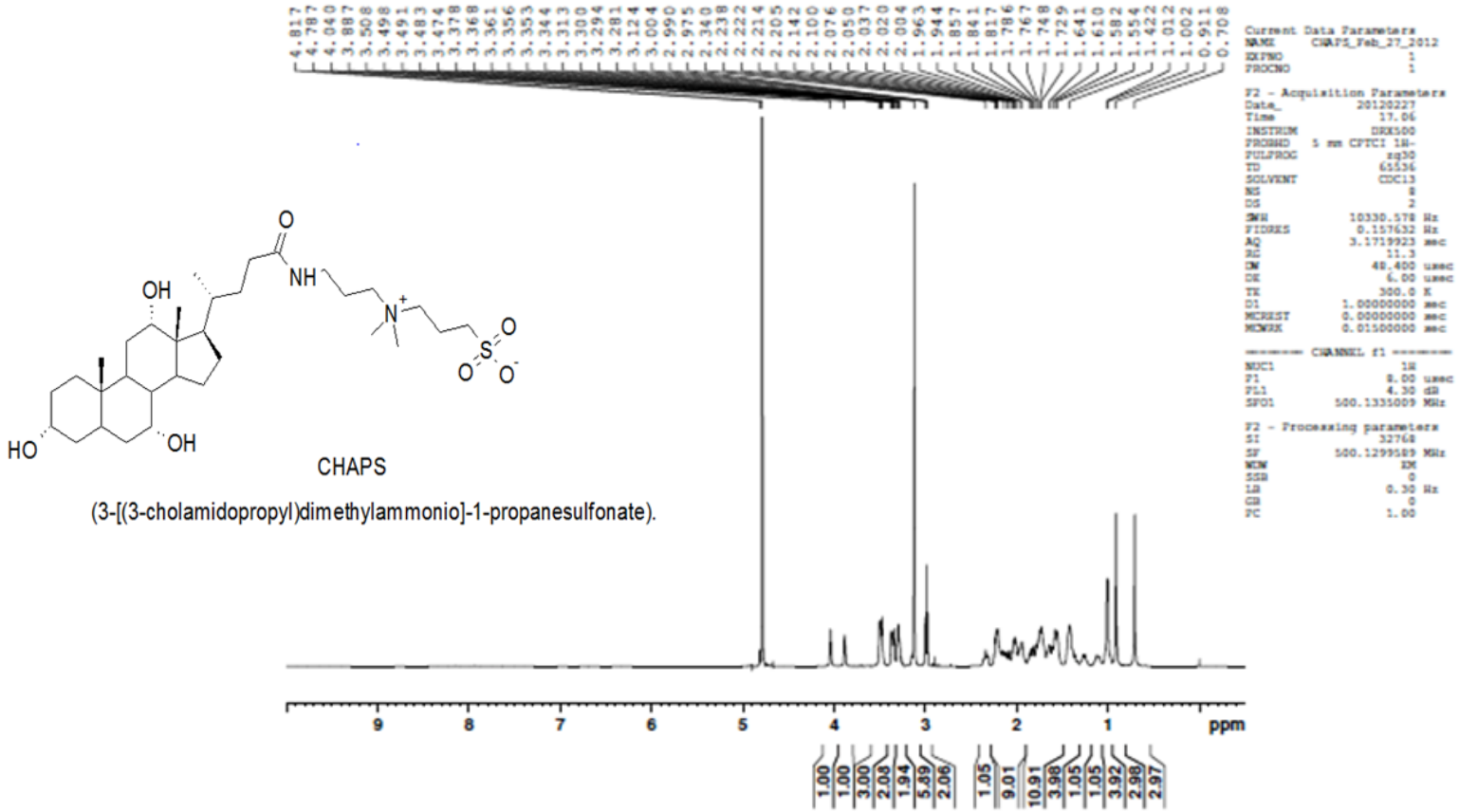
CHAPS, *Sigma-Aldrich* **2011**. www.http://www.sigmaaldric.com/catalog/ProductDetail.do
E MED CO, http://www.emedco.com (Accessed March 6 2012)

Synthesis

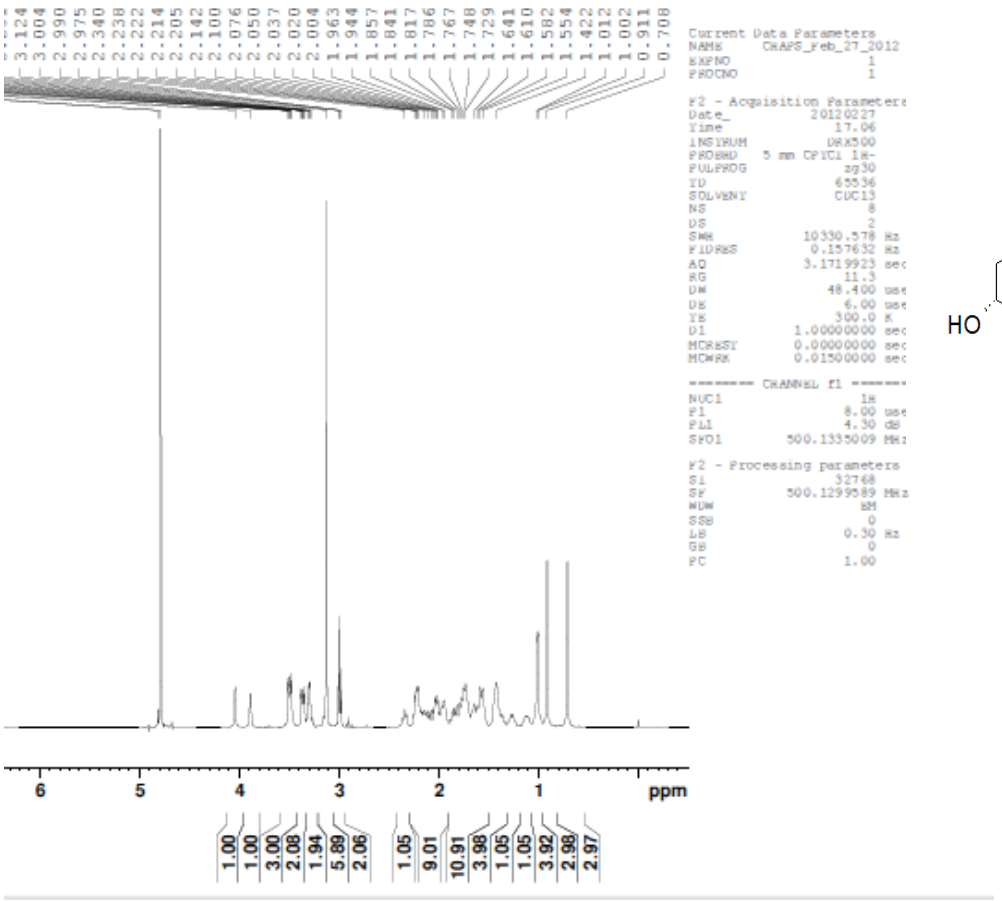


Hjelmeland, L. M. A Nondenaturing Zwitterionic detergent for Membrane Biochemistry Design and Synthesis. *Proc. Natl. Acad. Sci. USA* **1980**, *77*, 6368-6370.

^{1}H 1-Dimensional Proton NMR



^{1}H 1-Dimensional Proton NMR

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PROCNO                    1

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TD               65536
SOLVENT          CDCl3
NS                   8
DS                   2
SWH          10330.578 Hz
FIDRES        0.157632 Hz
AQ            3.1719923 sec
RG                11.3
DW               48.400 use
DE                6.00 use
TE              300.0 K
D1           1.00000000 sec
MCREST       0.00000000 sec
MCWRK        0.01500000 sec

======== CHANNEL f1 ========
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P1                 8.00 use
PL1                4.30 dB
SFO1        500.1335009 MHz

F2 - Processing parameters
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LB                 0.30 Hz
GB                    0
PC                 1.00
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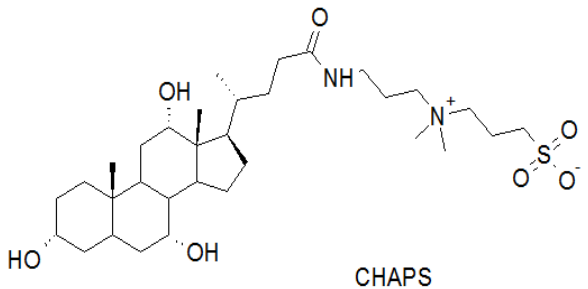
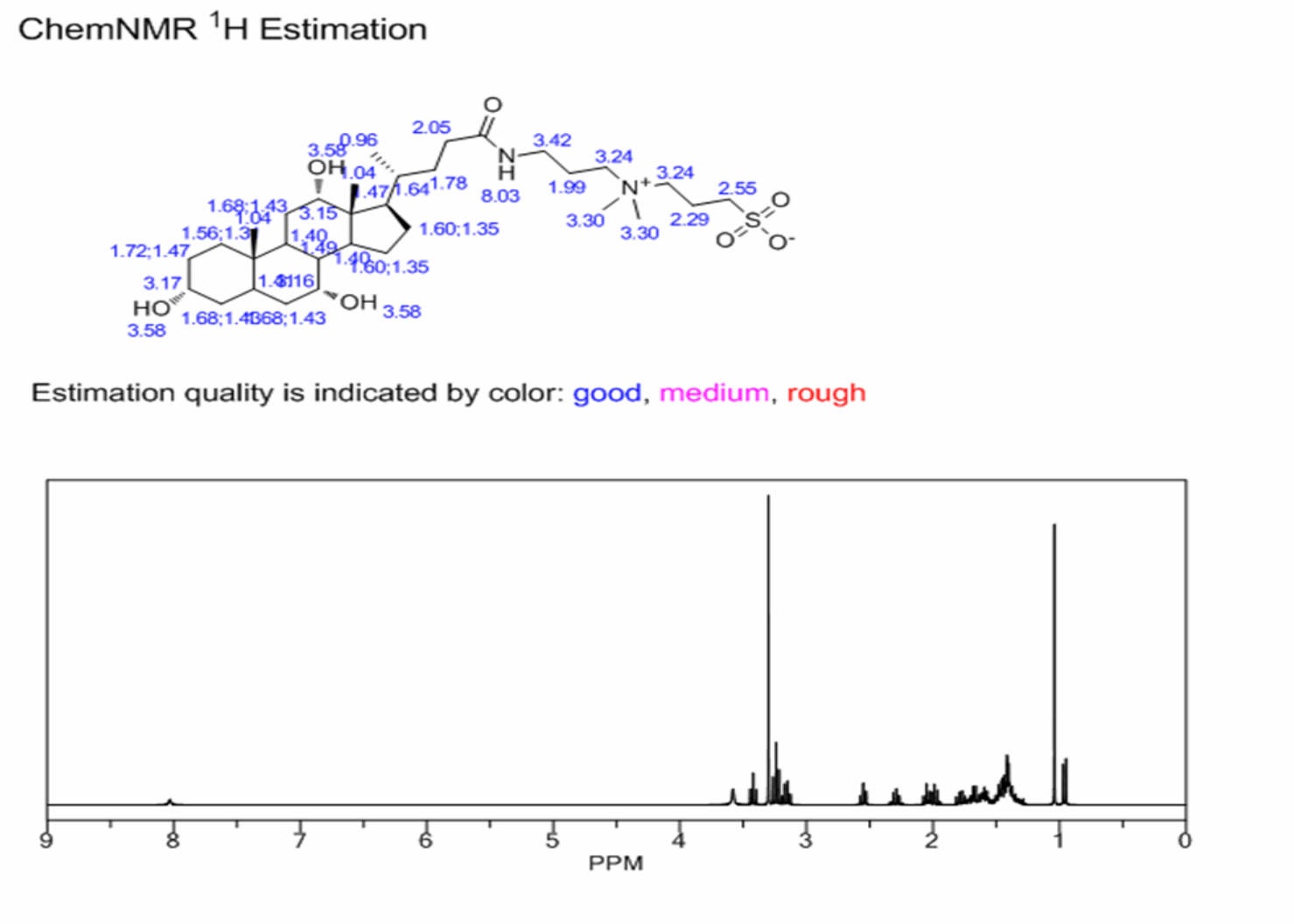


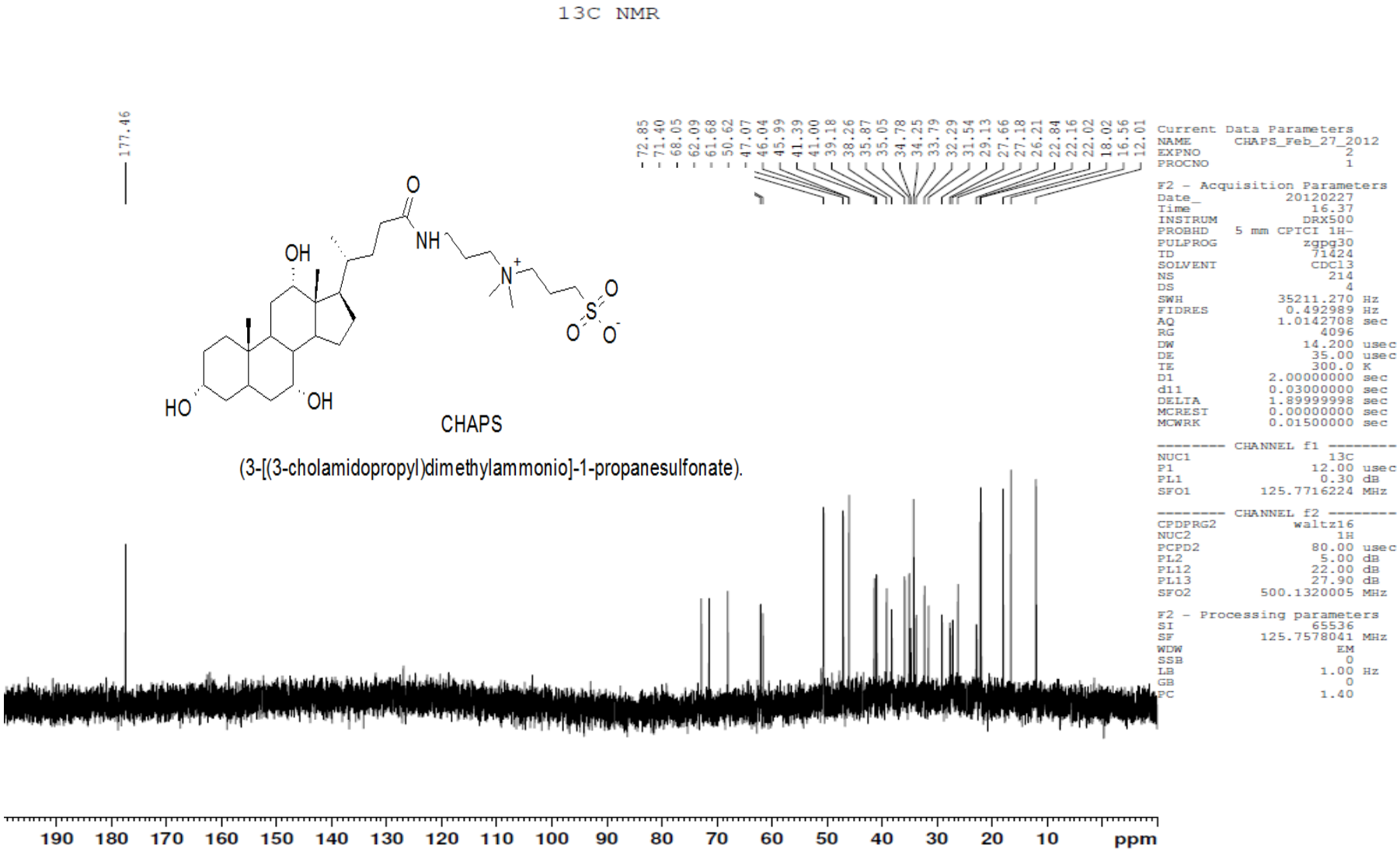
CHAPS

(3-[(3-cholamidopropyl)dimethylammonio]-1-propanesulfonate).

^{1}H 1-Dimensional Proton NMR as predicted by ChemBioDraw

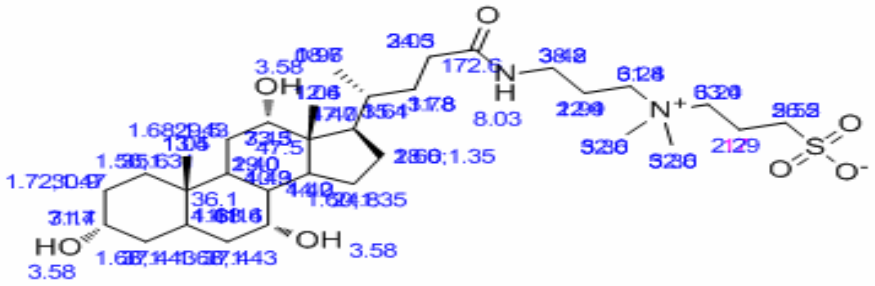


^{13}C 1-Dimensional NMR

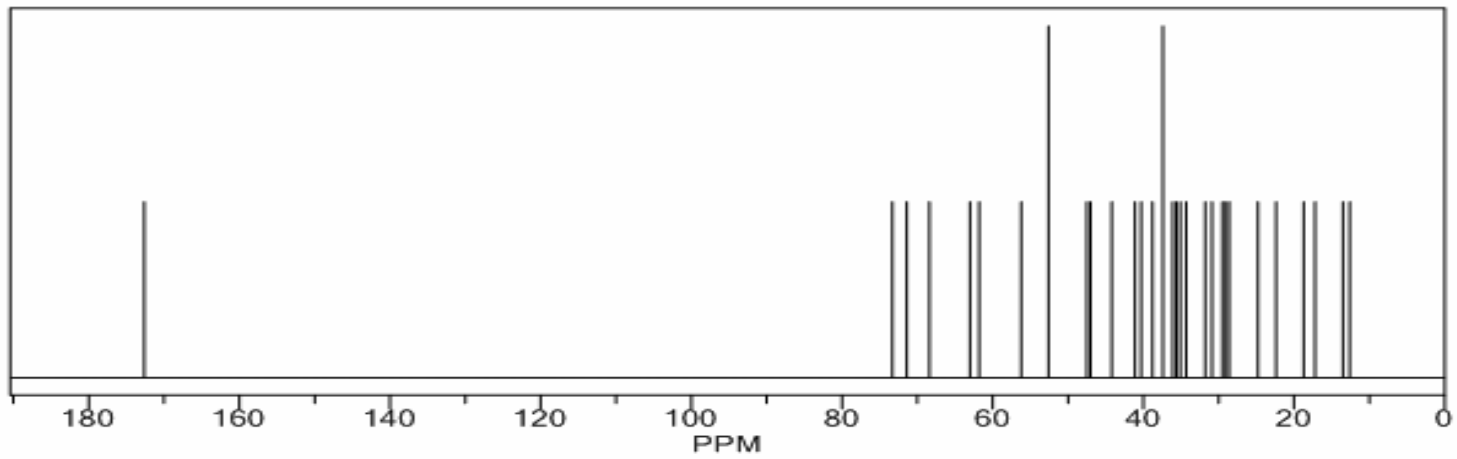


^{13}C 1-Dimensional NMR as predicted by ChemBioDraw

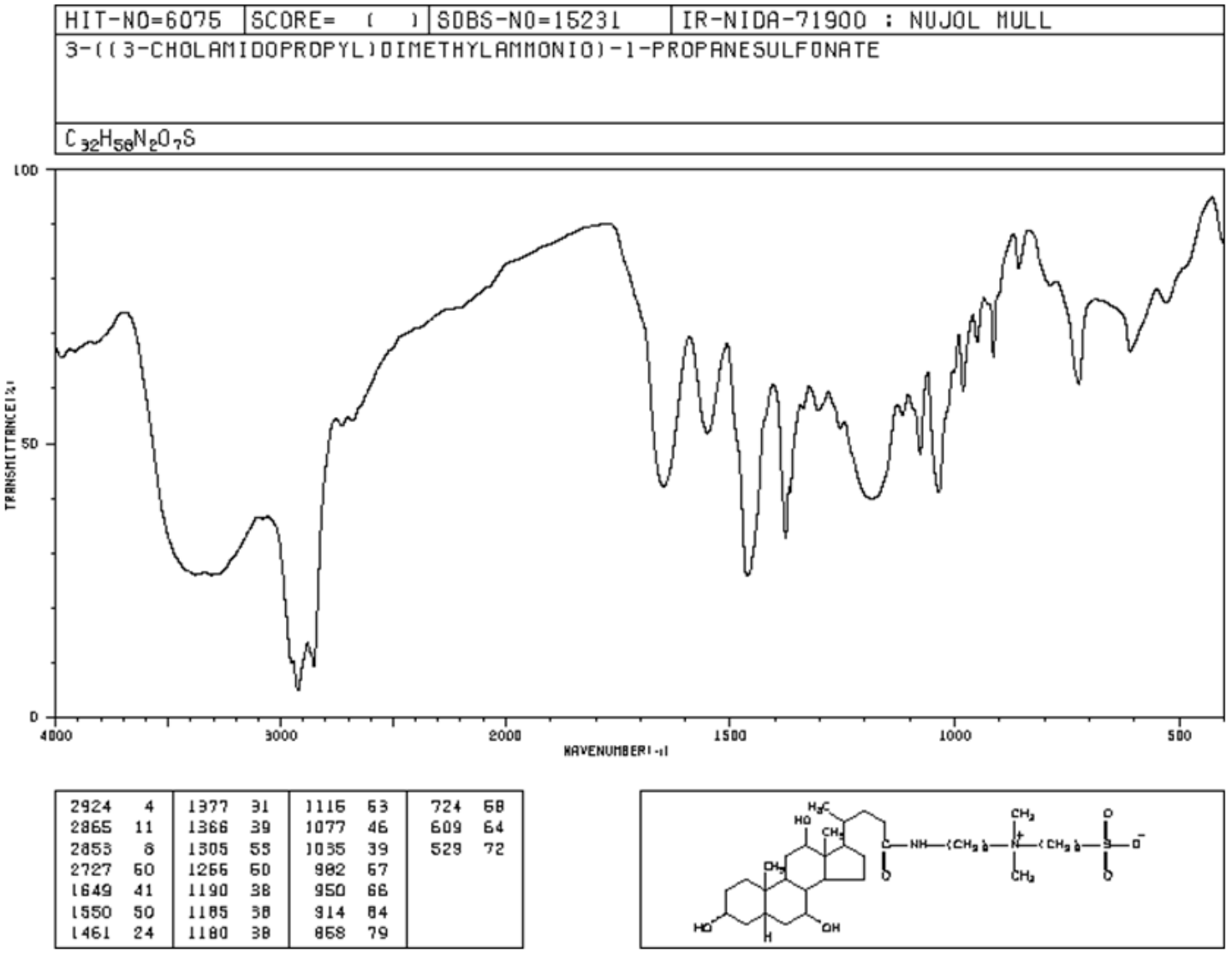
ChemNMR ^{13}C Estimation



Estimation quality is indicated by color: good, medium, rough



IR



Spectral Data base for Organic Compounds http://riodb01.ibase.aist.go.jp/sdbs/cgi-bin/cre_index.cgi?lang=eng

Thanks Everyone
Amanda Vo and Martial Fotso