

Claus Cornett, Ph.D., Lektor/associate Professor

Date of Birth: 08-10-1958

E-mail: claus.cornett@sund.ku.dk, [www: www.ku.dk](http://www.ku.dk), www.corn12.dk

ResearcherID: B-8893-2009. URL: <http://www.researcherid.com/rid/B-8893-2009>

Scientific career:

Master of Science/Cand. Scient, chemistry line, University of Copenhagen, August 1985.

Adjunkt/Assistant professor, Danish University of Pharmaceutical Sciences, Department of Medicinal Chemistry, 1/1-1988.

Ph. D. April 1992.

Lektor/Associate professor, Danish University of Pharmaceutical Sciences, Department of Medicinal Chemistry, 1992. Transferred to Department of Analytical Chemistry 1993, Now department of Pharmacy, Faculty of Medical and Health Sciences.

Head of group since November 2008.

Research Interests.

NMR spectroscopy: Structure elucidation and determination of physical chemical parameters for small molecules in general. Structure elucidation of drug metabolites. Use of other methods for structure elucidation of drug molecules. Applications of *chemometrics* in *analytical chemistry*. *Metabonomics* studies of diseases with the object of diagnostics, treatment and drug metabolism and other toxicological studies. *Hyphenation* of NMR and HPLC and Capillary Electrophoresis and Mass Spectrometry. Flow Injection NMR. Optimization of the strategy of the acquisition of hyphenated NMR-data. Improvement of the data processing of NMR time series data. Development of analytical methods based on NMR and other spectroscopic methods – e.g. NIR and Fluorescence – and *multivariate data analysis (MVA)*. *Metabonomics*. Application of spectroscopic methods to the understanding of formulation processes (technological pharmacy) (NMR, NIR, MIR, Raman, imaging etc.)

Ph.D. tutoring

Main advisor for 6, co-advisor for 14, internal censor (chair) for 15 (<http://www.corn12.dk/PhDstudents.html>).

Assessment of Qualifications

Chaired 4 committees for assistant professorship, 6 for associate Professorship.

Referee work:

I am or have been used as a reviewer by the following international journals: Analytical Chemistry, Planta Medica, Phytochemical Analysis, Journal of Chemometrics, Talanta, European Journal of Pharmaceutical Sciences, Bioanalysis, European Journal of Plant Biology, Journal of Agricultural and Food Chemistry.

Publications. >90 in international peer reviewed journals. Book-chapters: 2.

H-index: 24 (ISI web of Science).

Last 5 years (2010-2015 incl.):

73. Allesø, M., Tian, F., Cornett, C., Rantanen, J. Towards Effective Solid Form Screening. *J. Pharmaceutical Sciences.*, **99** 2010, 3711-3718. [10.1002/jps.21957](https://doi.org/10.1002/jps.21957).

74. Bredsdorff L. Nielsen I.L.F., Rasmussen S.E., Cornett C., Barron, D., Bouisset F., Offord E., and Williamson G. Absorption, conjugation and excretion of the flavanones, naringenin and hesperetin from α -rhamnosidase-treated orange juice in human subjects. *British J. of Nutrition.* **103**, 2010, 1602-1609. [10.1017/S0007114509993679](https://doi.org/10.1017/S0007114509993679).

75. Yu, H., Cornett, C., Larsen, J., Hansen, S. H., Hansen, S. H., Hansen. Reaction between drug substances and pharmaceutical excipients: Formation of esters between cetirizine and polyols. *J of Pharmaceutical and Biomedical Analysis*, **53**, 2010, 745-750. DOI: [10.1016/j.jpba.2010.05.001](https://doi.org/10.1016/j.jpba.2010.05.001).

76. Pedersen, B., Østergaard, J., Larsen, S., Cornett, C., Andersen, M., Larsen, C.; Physicochemical characteristics and

- in vitro release from oil-based vehicles of peptidomimetics: Parenteral depots for intra-articular administration. *Drug Development and Industrial Pharmacy*, **36**, 2010, 1-11. DOI: [10.3109/03639045.2010.491831](https://doi.org/10.3109/03639045.2010.491831).
77. Q, Haiyan, Munk, T.P., Cornett, C., Bøtker, J.P., Wu, J.X., Christensen, L.P., Rantanen, J.T., Tian, F. Understanding the Influence of Temperature on Solvent-Mediated Anhydrate-to-Hydrate Transformation. Accepted for publication in: *Pharmaceutical Research*, ember 2010. DOI: [10.1007/s11095-010-0281-9](https://doi.org/10.1007/s11095-010-0281-9).
78. Bøtker, J.P., Karmwar, P., Strachan, C.J., Cornett, C., Tian, F., Zujovic, Z., Rantanen, J., Rades, T. Assessment of crystalline disorder in cryo-milled samples of indomethacin using atomic pair-wise distribution functions. *International Journal of Pharmaceutics*. 2010. [doi:10.1016/j.ijpharm.2010.12.018](https://doi.org/10.1016/j.ijpharm.2010.12.018) (**Article in Press**, Corrected Proof).
79. Skonberg, S., Artmann, A., Cornett, C., Hansen, S. H., Hansen, S. S. Pitfalls in the sample preparation and analysis of N-acyl ethanolamines. *Journal of Lipid Research*, **51**, 2011, 3062-3073. DOI: [10.1194/JLR.D004606](https://doi.org/10.1194/JLR.D004606).
80. Campbell-Tofte JI, Mølgård P, Josefsen K, Abdallah Z, Hansen SH, Cornett C, Mu H, Richter EA, Petersen HW, Nørregaard JC, Winther K. *Journal of Ethnopharmacology*, **133**, 2011, :402-411. [doi:10.1016/j.jep.2010.10.013](https://doi.org/10.1016/j.jep.2010.10.013)
81. Reitzel, L.A., Dalsgaard, P.W., Müller, I.B., and Cornett, C. Identification of ten new designer drugs by GC-MS, UPLC-QTOF-MS, and NMR as part of a police investigation of a Danish Internet company. *Drug Testing and Analysis*. 2011. [doi:10.1002/dta.358](https://doi.org/10.1002/dta.358)
82. Boetker, J.P., Savolainen, M., Koradia, V., Tian, F.G., Rades, T., Mullertz, T., Cornett, C., Rantanen, J., and Ostergaard, J. Insights into the Early Dissolution Events of Amlodipine using UV Imaging and Raman Spectroscopy. *Molecular Pharmaceutics*, **8**, **2011**, 1372-1380. [doi:10.1021/mp200205z](https://doi.org/10.1021/mp200205z)
83. Aae Christensen, N. P., Cornett, C., and Rantanen, J. Role of Excipients on Solid State Properties of Piroxicam During Processing. *Journal of Pharmaceutical Sciences*. **101**, 2012, 1202-1211: [doi:10.1002/jps.23014](https://doi.org/10.1002/jps.23014)
84. Rajjada, D., Cornett C. Rantanen, J. A high throughput platform for understanding the influence of excipients on physical and chemical stability during early drug development. *International Journal of Pharmaceutics*. **453**, **2013**, 285-292. [doi:10.1016/j.ijpharm.2012.08.025](https://doi.org/10.1016/j.ijpharm.2012.08.025)
85. Rajjada, D., Bond, A.D., Larsen, F. H., Cornett, C., Qu, H., and Rantanen, J. Exploring the Solid-Form Landscape of Pharmaceutical Hydrates: Transformation Pathways of the Sodium Naproxen Anhydrate-Hydrate System. *Pharmaceutical Research*, 2012. [doi:10.1007/s11095-012-0872-8](https://doi.org/10.1007/s11095-012-0872-8)
86. Christensen, N.P.A., Rantanen, J., Cornett, C., and Taylor, L.S.: Disproportionation of the calcium salt of atorvastatin in the presence of acidic excipients. *Eur. J. Pharm. Biopharm.* **82**, 2012, 410-416. [doi:10.1016/j.ejpb.2012.07.003](https://doi.org/10.1016/j.ejpb.2012.07.003)
87. Christensen, N.P.A., Van Eerdenbrugh B., Kwok, K., Taylor, L.S., Bond, A.d, Rades, T., Rantanen, J., and Cornett, C: Rapid insight into heating-induced phase transformations in the solid-state of the calcium salt of atorvastatin using multivariate data analysis. *Pharm. Res.* **30**, 2013, 826-835. [doi:10.1007/s11095-012-0923-1](https://doi.org/10.1007/s11095-012-0923-1)
- 88.** Bond, A., Cornett, C., Larsen, F. H., Qu, H., Rajjada, D. K. & Rantanen, J. Structural basis for the transformation pathways of the sodium naproxen anhydrate-hydrate system. *IUCrJ*. **1**, 2014. 328-337. [doi:10.1107/S2052252514015450](https://doi.org/10.1107/S2052252514015450)
- 89.** Foderà, V., Vetri, V., Wind, T. S., Noppe, W., Cornett, C., Donald, A. M., Morozova-Roche, L. A. & Vestergaard, B. Observation of the Early Structural Changes Leading to the Formation of Protein Superstructures. *Journal of Physical Chemistry Letters*. **18**, 2014, 3254-3258. [doi:10.1021/jz501614e](https://doi.org/10.1021/jz501614e)
90. Jensen, S. S.; Jensen, H.; Cornett, C.; Møller, E.H.; Østergaard, J. Insulin diffusion and self-association characterized by real-time UV imaging and Taylor dispersion analysis. *Journal of pharmaceutical and biomedical analysis*. **92**, **2014**, s. 203-10. <http://dx.doi.org/10.1016/j.jpba.2014.01.022>
91. Rajjada, D. K.; Müllertz, A.; Cornett, C.; Munk, T.; Sonnergaard, J.; Rantanen, J. Miniaturized approach for excipient selection during the development of oral solid dosage form. *Journal of pharmaceutical sciences*, **103**, **2014**, 900-8. <http://dx.doi.org/10.1002/jps.23840>
- 91.** Jensen, K. B. T., Larsen, F. H., Cornett, C., Löbmann, K., Grohganz, H. & Rades, T. Formation mechanism of coamorphous drug–amino acid mixtures. *Molecular Pharmaceutics*. **12**, **2015**. 2484–2492. <http://dx.doi.org/10.1021/acs.molpharmaceut.5b00295>
92. Jensen, S. S., Jensen, H., Cornett, C., Møller, E. H. & Østergaard, J. Real-time UV imaging identifies the role of pH in insulin dissolution behavior in hydrogel-based subcutaneous tissue surrogate. *European Journal of Pharmaceutical Sciences*. **69**, **2015**, 26-36. <http://dx.doi.org/10.1016/j.ejps.2014.12.015>
93. Rønsted, N., Hansen, S. H., Cornett, C., Maldonado Goyzueta, C. B. & Holmfred, E. An efficient, robust, and inexpensive grinding device for herbal samples like Cinchona bark. *Scientia Pharmaceutica*. **83**, **2015**, 369-376 <http://dx.doi.org/10.3797/scipharm.1410-14>
94. Schou-Pedersen, A. M. V., Østergaard, J., Cornett, C. & Hansen, S. H. Evaluation of microwave oven heating for prediction of drug-excipient compatibilities and accelerated stability studies. *International journal of pharmaceutics*. **485**, **2015**, 97-107. <http://dx.doi.org/10.1016/j.ijpharm.2015.02.071>
95. Schou-Pedersen, A. M. V., Cornett, C., Nyberg, N., Østergaard, J. & Hansen, S. H. Structure elucidation and quantification of impurities formed between 6-aminocaproic acid and the excipients citric acid and sorbitol in an oral solution using high-resolution mass spectrometry and nuclear magnetic resonance spectroscopy. *Journal of pharmaceutical and biomedical analysis*. **107**, **2015**. 333-340. <http://dx.doi.org/10.1016/j.jpba.2015.01.022>