



gen2-SCA & Model 3510 SCA – publications

2017

Depth-Dependent Autofluorescence Photobleaching using 325, 473, 633 and 785 nm of Porcine Ear Skin ex Vivo, J.Schleusener, J. Lademann, M.E. Darwin, Journal of Biomedical Optics 22 (9), 2017.

2016

DFT:B3LYP/3-21G Theoretical Insights on the Confocal Raman Experimental Observations in Skin Dermis of Healthy young, Healthy Elderly, and Diabetic Elderly Women, C.A.Tellez Soto, L. Pereira, L.dos Santos, R. Rajasekaran, P. Favero, A.A. Martin, Journal of Biomedical Optics, 21 (12), December 2016.

Water Resistance Profile as a Marker of Skin Barrier Damage in Atopic Dermatitis Patients, M.D.A. van Logtestijn, P.J. Caspers, S. Kezic, D.R. Hoffman, D.W. Koenig, M. Ono, G.N. Stamatias, R.J. Tanaka, Journal Dermatology Science, 81, 124-142, 2016.

In Vivo Intra- and Inter-Individual Variability Study of Human Stratum Corneum by Confocal Raman Spectroscopy, L. dos Santos, J.L. Rangel, V.K. Tippavajhala, M.G.P. da Silva, B.Mogilevych, A.A. Martin, Vibrational Spectroscopy, 87, 199-206, 2016.

Depth Profiles of Hydrogen Bound Water Molecule Types and Their Relation to Lipid and Protein Interaction in the Human Stratum Corneum in Vivo, C.Choe, J.Lademann, M.E. Darwin, Royal Society of Chemistry, 24 Oct, 2016.

Confocal Raman Microscopy and Multivariate Statistical Analysis for Determination of Different Penetration Abilities of Caffeine and Propylene Glycol Applied Simultaneously in a Mixture on Porcine Skin ex Vivo, S.M. Ascencio, C.Choe, M.C. Meinke, R.H. Muler, G.V. Maksimov, W.Wigger-Alberti, J. Lademann, M.E. Darwin, Europ Journal of Pharmac and Biopharmac 104, 51-58, 2016.

Multiparameter Toxicity Assessment of Novel DOPO-derived Organophosphorus Flame Retardants, C. Hirsch, B. Striegl, S. Mathes, Chr. Adlhart, M. Edelmann, E. Bono, S. Gaan, K. A. Salmeia, L. Hoelting, A. Krebs, J. Nyffeler, R. Pape, A. Burkle, M. Leist, P. Wick, S. Schildknecht, Arch Toxicol, Feb 2016.

A Depth-Dependent Profile of the Lipid Conformation and Lateral Packing Order of the Stratum Corneum in Vivo Measured Using Raman Microscopy, C. Choe, J. Lademann, M.E. Darwin, Analyst, 141, 1981-1987, 2016.

Real-time Detection of p-phenylenediamine Penetration into Human Skin by in Vivo Raman Spectroscopy, L. M. Pot, P.J. Coenraads, B. Blomeke, G.J. Puppels, P.J. Caspers, Contact Dermatitis, 2016.

2015

Resistance to Water Diffusion in the Stratum Corneum Is Depth-Dependent, M.D.A. van Logtestijn, E. Dominguez-Huttinger, G.N. Stamatias, R.J. Tanaka, PLOS One Volume 10, 2, Art Nr e0117292, 2015.

V20160606



gen2-SCA & Model 3510 SCA – publications

Imaging Wavelength and Light Penetration Depth for Water Content Distribution Measurement of Skin, H. Arimoto, M. Egawa, *Skin Research and Technology* 21, 94-100, 2015.

Confocal Raman Micro-Spectroscopy: a New Paradim in the Diagnosis of Sensitive Skin? D. Falcone, N.E. Uzunbajakava, P.E.J. van Erp, P.C.M. van de Kerkhof, *Sensitive Skin Chapter 10*, April, 2015.

Confocal Raman Spectroscopy as an Optical Sensor to Detect Advanced Glycation End Products of the Skin Dermis, L. Pereira, C.A. Tellez Soto, L. dos Santos, P.P. Favero, A.A. Martin, *Sensor Letters*, Vol 13, 1-11, 2015.

RM1 semi Empirical and DFT: B3LYP/3-21G Theroretical Insights on the Confocal Raman Experimental Observations in Qualitative Water Content of the Skin Dermis of Healthy Young, Healthy Elderly and Diabetic Elderly Women's, C.A. Tellez S, L. Pereira, L. dos Santos, P. Favero, A.A. Martin, *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy* 149, 1009-1019, 2015.

Skin Concentrations of Topically Applied Substances in Reconstructed Human Epidermis (RHE) compared with Human Skin Using in vivo Confocal Raman Microscopy, F.D. Fleischli, F. Morf, C. Adlhart, *Chimia* 69, 147- 151, 2015.

Assessment of Raman Spectroscopy as a Fast and Non-Invasive Method for Total Stratum Corneum Thickness Determination of Pig Skin, D. S. Mahrhauser, C. Nagelreiter, S. Gehrig, A. Geyer, M. Ogris, K. Kwizda, C. Valenta, *International Journal of Pharmaceutics*, 495, 482-484, 2015.

Immediate and Extended Effects of Abrasion on Stratum Corneum Natural Moisturizing Factor, D.R. Hoffman, L.M. Kroll, A. Basehoar, B. Reece, C.T. Cunningham and D.W. Koenig, *Skin Research and Technology* 0, 1–7, 2015.

In Vivo Raman Spectroscopy of Skin, P.D.A. Pudney, *Spectroscopy Europe* 27, 2, 2015.

2014

Understanding the Dandruff Scalp Before and After Treatment: an In Vivo Raman Spectroscopic Study E.Y.M. Bonnist, P.D.A. Pudney, L.A. Weddell, J. Campbell, F.L. Baines, S. Paterson , J.R. Matheson, *International Journal of Cosmetic Science* 36, 347–354, 2014.

Lipid to Protein Ratio Plays an Important Role in the Skin Barrier Function of Atopic Eczema Patients, M. Janssens, J. van Smeden, G.J. Puppels, A.P.M. Lavrijsen, P.J. Caspers, J.A. Bouwstra, *British Journal of Derm*, 1248-1255, 2014.

Comparison of the Stratum Corneum Thickness Measured in Vivo With Confocal Raman Spectroscopy and Confocal Reflectance Microscopy, A. Boehling, S. Bielfeldt, A. Himmelmann, M. Keskin, K-P. Wilhelm, *Skin Research and* 20, 50–57, 2014.

V20160606



gen2-SCA & Model 3510 SCA – publications

Immediate and Extended Effects of Sodium Lauryl Sulphate Exposure on Stratum Corneum Natural Moisturizing Factor,
D.R. Hoffman, L.M. Kroll, A. Basehoar, B. Reece, C.T. Cunningham and D.W. Koenig,
International Journal of Cosmetic Science 36, 93–101, 2014.

In Vivo Evaluation of Two Forms of Urea in the Skin by Raman Spectroscopy After Application of Urea-Containing Cream,
M. Egawa and Y. Sato,
Skin Research and Technology 0, 1–6, 2014.

Age-Dependent Changes in Stratum Corneum Barrier Function,
E. Boireau-Adamezyk, A. Baillet-Guffroy and G.N. Stamatas,
Skin Research and Technology 20, 409–415, 2014.

In Vitro–In Vivo Correlation in Skin Permeation,
D. Mohammed, P.J. Matts, J. Hadgraft, M.E. Lane,
Pharm Res, 31, 394–400, 2014.

Gaussian-Function-Based Deconvolution Method to Determine the Penetration Ability of Petrolatum Oil Into in Vivo Human Skin Using Confocal Raman Microscopy,
C-S. Choe, J. Lademann, M.E. Darvin,
Laser Physics 24, 10, Art Nr 105601.

2013

A New Paradigm in Dermatopharmacokinetics – Confocal Raman Spectroscopy,
R. Mateus, H. Abdalghafor, G. Oliveira, J. Hadgraft, M.E. Lane,
International Journal of Pharmaceutics 444, 106–108, 2013.

Influence of Niacinamide Containing Formulations on the Molecular and Biophysical Properties of the Stratum Corneum,
D. Mohammed, J.M. Crowther, P.J. Matts, J. Hadgraft, M.E. Lane,
International Journal of Pharmaceutics 441, 192–201, 2013.

Improved Modeling of In Vivo Confocal Raman Data Using Multivariate Curve Resolution (MCR) Augmentation of Ordinary Least Squares Models,
T.M. Hancewicz, C. Xiao, S. Zhang, M. Misra,
Applied Spectroscopy 67, 1463-1472, 2013.

Improvement of Skin Barrier Function in Atopic Dermatitis Patients With a New Moisturizer Containing a Ceramide Precursor,
E. Simpson, A. Böhling, S. Bielfeldt, C. Bosc, N. Kerrouche,
Journal of Dermatological Treatment, 24, 122–125, 2013.



gen2-SCA & Model 3510 SCA – publications

2012

An Evaluation of Barrier Repair Foam on the Molecular Concentration Profiles of Intrinsic Skin Constituents Utilizing confocal Raman Spectroscopy,

K. Cash, W. High, J. de Sterke,

Journal of Clinical and Aesthetic Dermatology, Vol 5, nr 81, august 2012.

A Consensus Modeling Approach for the Determination of Stratum Corneum Thickness Using In-Vivo Confocal Raman Spectroscopy,

T.M. Hancewicz, C. Xiao, J. Weissman, V. Foy, S. Zhang, M. Misra,

Journal of Cosmetics, Dermatological Sciences and Applications, 2, 241-251, 2012.

Filaggrin Loss-of-Function Mutations are Associated with Enhanced Expression of IL-1 Cytokines in the Stratum Corneum of Patients with Atopic Dermatitis and in a Murine Model of Filaggrin Deficiency,

S. Kezic, G.M. O'Regan, R. Lutter, I. Jakasa, E.S. Koster, S. Saunders, P. Caspers, P.M.J.H. Kemperman, G.J. Puppels, A. Sandilands, H. Chen, L.E. Campbell, K. Kroboth, R. Watson, P.G. Fallon, W.H.I. McLean, A.D. Irvine,

Journal of Allergy and Clinical Immunology 129, 1031-U542, 2012.

Infant Epidermal Skin Physiology: Adaptation After Birth,

J.W. Fluhr, R. Darlenski, N. Lachmann, C. Baudouin, P. Msika, C. De Belilovsky, J.-P. Hachem,

British Journal of Dermatology 166, 483–490, 2012.

Increase in Short-Chain Ceramides Correlates With an Altered Lipid Organization and Decreased Barrier Function in Atopic Eczema Patients,

M. Janssens, J. van Smeden, G. Gooris, W. Bras, G. Portale, P.J. Caspers, R.J. Vreeken, T. Hankemeier, S. Kezic, R. Wolterbeek, A.P. Lavrijsen, J.A. Bouwstra,

Journal of Lipid Research Volume 53, 257-266, 2012.

A New in Vivo Raman Probe for Enhanced Applicability to the Body,

P. Pudney, E. Bonnist, P. Caspers, J-P. Gorce, C. Marriot, G. Puppels, S. Singleton, M. van der Wolf, Applied Spectroscopy 66, Number 8, 2012.

A Consensus Modeling Approach for the Determination of Stratum Corneum Thickness Using In-Vivo Confocal Raman Spectroscopy,

T. M. Hancewicz, C. Xiao, J. Weissman, V. Foy, S. Zhang, M. Misra,

Journal of Cosmetics, Dermatological Sciences and Applications, 2, 241-251, 2012.

Impact of Filaggrin Mutations on Raman Spectra and Biophysical Properties of the Stratum Corneum in Mild to Moderate Atopic Dermatitis,

V. Mlitz, J. Latreille, S. Gardinier, R. Jdid, Y. Drouault, P. Hufnagl, L. Eckhart, C. Guinot, E. Tschachler.

JEADV, 26, 983–990, 2012.

2011

Caspase-14 Is Required for Filaggrin Degradation to Natural Moisturizing Factors in the Skin,

E. Hoste, P. Kemperman, M. Devos, G. Denecker, S. Kezic, N. Yau, B. Gilbert, S. Lippens, P. De Groote, R. Roelandt, P. Van Damme, K. Gevaert, R.B. Presland, H. Takahara, G. Puppels, P. Caspers, P. Vandenabeele, W. Declercq,

Journal of Investigative Dermatology 131, 2233–2241, 2011.



gen2-SCA & Model 3510 SCA – publications

Characterizing the Composition of Underarm and Forearm Skin Using Confocal Raman Spectroscopy,
J.Q. Wu, L. Kilpatrick-Liverman,
Int J. of Cosm Sci. 1-7, 2011.

In Vivo Skin Treatment with Tissue-Tolerable Plasma Influences Skin Physiology and Antioxidant Profile in Human Stratum Corneum,
J.W. Fluhr, S. Sassning, O. Lademann, M.E. Darvin, S. Schanzer, A. Kramer, H. Richter, W. Sterry, J. Lademann.
Experimental Dermatology, 21, 130–134.

In vivo Monitoring of Epidermal Absorption of Hazardous Substances by Confocal Raman Micro-spectroscopy,
H. C. Broding, A. van der Pol, J. de Sterke, C. Monsé, M. Fartasch, T. Brüning
Journal der Deutschen Dermatologischen Gesellschaft 9, 618–626, 2011.

2010

The Evaluation of the Amount of Cis- and Trans-Urocanic Acid in the Stratum Corneum by Raman Spectroscopy,
M. Egawa, J. Nomura, H. Iwaki,
Photochem. Photobiol. Sci. 9, 730-733, 2010.

In Vivo Characterization of the Structure and Components of Lesional Psoriatic Skin From the Observation with Raman Spectroscopy and Optical Coherence Tomography: A Pilot Study,
M. Egawa, N. Kunizawa, T. Hirao, T. Yamamoto, K. Sakamoto, T. Terui, H. Tagami,
Journal of Derm Sc. 57, 57-73, 2010.

Raman Profiles of the Stratum Corneum Define 3 Filaggrin Genotype-Determined Atopic Dermatitis Endophenotypes,
G.M. O'Regan, P.M.J.H. Kemperman, A. Sandilands, H. Chen, L. E. Campbell, K. Kroboth, R. Watson, M. Rowland, G.J. Puppels, W.H.I. McLean, P.J. Caspers, A.D. Irvine,
J. Allergy Clin Immunol, Vol 126, 574-580, 2010.

In Vivo Measurements of the Water Content in the Dermis by Confocal Raman Spectroscopy,
N. Nakagawa, M. Matsumoto, S. Sakai,
Skin Res. and Techn. 16, 137-141, 2010.

Development and Clinical Analysis of a Novel Humectant System of Glycerol, Hydroxyethylurea, and Glycerol Quat.
N. Lu, P. Chandar, G. Nole, B. Dobkowski, A.W. Johnson,
Cosm. Derm. 23, 86-95, 2010.

2009

Changes in the Depth Profile of Water in the Stratum Corneum Treated With Water,
M. Egawa, T. Kajikawa,
Skin Res. Technol. 15, 242-249, 2009.



gen2-SCA & Model 3510 SCA – publications

Studying the Effectiveness of Penetration Enhancers to Deliver Retinol Through the Stratum Corneum by In-Vivo Confocal Raman Spectroscopy,

M. Mélot, P.D.A.Pudney, A.-M. Williamson, P. J. Caspers, A. van der Pol and G. J. Puppels,
J. Control. Release 138, 32-39, 2009.

In Vivo Distribution of Carotenoids in Different Anatomical Locations of Human Skin:
Comparative Assessment with Two Different Raman Spectroscopy Methods,

M. Darvin, J.W. Fluhr, P.J. Caspers, A. van der Pol, H. Richter, A. Patzelt, W. Sterry and J. Lademann,
Exper. Dermatol. 18, Issue 12: 1060-1063, 2009.

In Vivo Raman Spectroscopy Detects Increased Epidermal Antioxidative Potential with Topically Applied Carotenoids,

J. Lademann, P.J. Caspers, A. van der Pol, H. Richter, A. Patzelt, L. Zastrow, M. Darvin, W. Sterry and J.W. Fluhr,
Laser Phys. Lett. 6, 76-79, 2009.

Depth Profiling of Stratum Corneum Hydration In Vivo: A Comparison Between Conductance and Confocal Raman Spectroscopic Measurements,

M. Boncheva, J. de Sterke, P.J. Caspers and G.J. Puppels,
Exper. Dermatol. 18(10), 870-876, 2009.

Assessment of Human Stratum Corneum Thickness and its Barrier Properties by In-Vivo Confocal Raman Spectroscopy,

S. Bielfeldt, V. Schoder, U. Ely, A. van der Pol, J. de Sterke and K.-P. Wilhelm,
IFSCC Magazine 12, 1, 2009.

Confocal Raman Spectroscopy for In Vivo Skin Hydration,

A. van der Pol and P.J. Caspers.

In: M. Paye, A.J. Barel, H.I. Maibach (eds.), Handbook of Cosmetic Science and Technology – Third Edition,
Informa Publishing, Chapter 14, 2009.

2008

Measuring the Effects of Topical Moisturisers on Changes in Stratum Corneum Thickness, Water Gradients, and Hydration In-Vivo,

J.M. Crowther, A. Sieg, P. Blenkiron, C. Marcott, P.J. Matts, J.R. Kaczvinsky and A.V. Rawlings, Br.
J. Dermatol. 159, 567-577, 2008.

Comparison of the Depth Profiles of Water and Water-binding Substances in the Stratum Corneum Determined In Vivo by Raman Spectroscopy Between the Cheek and Volar Forearm Skin: Effects of Age, Seasonal Changes and Artificial Forced Hydration,

M. Egawa and H. Tagami,
Br. J. Dermatol. 158, 251-260, 2008.

In Vivo Evaluation of the Protective Capacity of Sunscreen by Monitoring Urocanic Acid Isomer in the Stratum Corneum Using Raman Spectroscopy,

M. Egawa and H. Iwaki,
Skin Res. Technol. 14, 410-417, 2008.

Loss-of-function Mutations in the Filaggrin Gene Lead to Reduced Level of Natural Moisturizing Factor in the Stratum Corneum,

V20160606



gen2-SCA & Model 3510 SCA – publications

S. Kezic, P.M.J.H. Kemperman, E.S. Koster, C.M. de Jongh, H.B. Thio, L.E. Campbell, A.D. Irvine, I.W.H. McLean, G.J. Puppels and P.J. Caspers,
J. Invest. Dermatol. 128, 2117–2119, 2008.

In Vivo Raman Confocal Microspectroscopy of Skin,
A. van der Pol, W.M.R. Riggs and P.J. Caspers.
In: Šašić S, ed. Pharmaceutical Applications of Raman Spectroscopy. John Wiley & Sons, Inc, 191-219, 2008.

Lipid Uptake and Skin Occlusion Following Topical Application of Oils on Adult and Infant Skin,
G.N. Stamatias, J. de Sterke, M. Hauser, O. von Stetten and A. van der Pol,
J. Dermatol. Science 50, 135-142, 2008.

Barrier Function and Water-Holding and Transport Properties of Infant Stratum Corneum Are Different from Adult and Continue to Develop Through the First Year of Life,
J. Nikolovski, G.N. Stamatias, N. Kollias and B.C. Wiegand,
J. Invest. Dermatol. 128, 1728–1736, 2008.

Confocal Raman Microspectroscopy of Stratum Corneum: a Pre-clinical Validation Study,
J. Wu and T.G. Polefka,
Int. J. Cosmet. Science 30, 47-56, 2008.

2007

In Vivo Estimation of Stratum Corneum Thickness from Water Concentration Profiles Obtained with Raman Spectroscopy,
M. Egawa, T. Hirao and M. Takahashi,
Acta Derm. Venereol. 87, 4-8, 2007.

Assessment of the “Skin Reservoir” of Urea by Confocal Raman Microspectroscopy and Reverse Iontophoresis In Vivo,
V. Wascotte, P.J. Caspers, J. de Sterke, M. Jadoul, R.H. Guy and V. Preat,
Pharmac. Res. 24, 1897-1901, 2007.

An In Vivo Confocal Raman Study of the Delivery of Trans-retinol to the Skin,
P. Pudney, M. Mélot, P.J. Caspers, A. van der Pol and G.J. Puppels,
Appl. Spectrosc. 61, 804-811, 2007.

2006 and earlier

Confocal Raman Microspectroscopy – Measuring the Effects of Topical Moisturizers on Stratum Corneum Water Gradient In Vivo,
A. Sieg, J.M. Crowther, P. Blenkiron, C. Marcott, P.J. Matts, In: A. Mahadevan-Jansen and W.H. Petrich, Biomedical Vibrational Spectroscopy III: Advances in Research and Industry.
Proc SPIE 2006, 6093, 157-163, 2006.

Combined In Vivo Confocal Raman Spectroscopy and Confocal Microscopy of Human Skin,
P.J. Caspers, G.W. Lucassen and G.J. Puppels,
Biophys. J. 85, 572-580, 2003.



gen2-SCA & Model 3510 SCA – publications

In Vivo Skin Characterization by Confocal Raman Microspectroscopy,
P.J. Caspers,
Ph.D. Thesis, Erasmus University Medical Center, ISBN 90-6734-366-8, 2003.

Monitoring the Penetration Enhancer Dimethyl Sulfoxide in Human Stratum Corneum by In Vivo Confocal Raman Spectroscopy,
P.J. Caspers, A.C. Williams, E.A. Carter, H.G.M. Edwards, B.W. Barry, H.A. Bruining and G.J. Puppels, Pharm. Res. 19, 1577-1580, 2002.

In Vivo Confocal Raman Microspectroscopy of the Skin: Noninvasive Determination of Molecular Concentration Profiles,
P.J. Caspers, G.W. Lucassen, E.A. Carter, H.A. Bruining and G.J. Puppels,
J. Invest. Dermatol. 116, 434-442, 2001.

Automated Depth-scanning Confocal Raman Microspectrometer for Rapid In Vivo Determination of Water Concentration Profiles in Human Skin,
P.J. Caspers, G.W. Lucassen, H.A. Bruining and G.J. Puppels,
J. Raman Spectrosc. 31, 813-818, 2000.

In Vitro and In Vivo Raman Spectroscopy of Human Skin,
P.J. Caspers, G.W. Lucassen, R. Wolthuis, H.A. Bruining and G.J. Puppels,
Biospectroscopy 4, S31-S39, 1998.