

Curriculum vitae

Curriculum Vitae Grith Lykke Sørensen, 270771

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Married, two children

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Education and academic qualifications:

June 1995 - B.Sc. from University of Roskilde in molecular biology and chemistry.

March 1998 - M.Sc. from University of Copenhagen in human biology (grade: 11.2).

August 1998 - Ph.D-position at University of Southern Denmark, Odense University, The Faculty of Science and Engineering.

June 2000 - Change of Ph.D-project, now at Immunology and Microbiology, SDU, Odense University.

June 2000 - Stay at Sct. Radcliffe Hospital in Oxford in Dr. Zsuzsa Kertesz laboratory

5th December 2003 - PhD from the University of Southern Denmark

Employment:

December 2003 - Assistant professor at Institute of Medical Biology (IMB), University of Southern Denmark

December 2003 - **maternal leave** (6th December 2003 – 21th August 2004)

March 2007 - **maternal leave** (19th April 2007 – 19th October 2007)

October 2007 - Assistant professor position at Medical Biotechnology Center, IMB, University of Southern Denmark

January 2009 - Associate professor position at Cardiovascular and Renal Research, Institute for Molecular Medicine, University of Southern Denmark

October 2014 – Associate professor position at Cancer and Inflammation, Institute for Molecular Medicine, University of Southern Denmark

Other scientific qualifications:

30 international meetings with oral or poster presentation. International peer reviewing 2006-2014: Genes and Immunity, Circulation, Tissue antigens, Thorax, British lung Foundation, Clinical and Experimental Immunology, American Journal of physiology (Lung Cellular and Molecular Physiology), American Journal of Respiratory and Critical Care Medicine, European Respiratory Journal, PLoS ONE. Chairman of three PhD-defenses, member of assessment committee for one.

Research Management:

Completion of Research Leader and Management Course at the Copenhagen Business School 2011. Main coordinator for Center for COPD research CeKOL (www.cekol.dk)

Scientific focus areas:

My research comprises the investigations of the collectin Surfactant Protein D (SP-D) and the complement activating fibrinogen related domain (FReD) proteins the Ficolins, and Microfibrillar protein 4 (MFAP4). The research mainly addresses diseases within the pulmonary or cardiovascular systems. The research into SP-D and MFAP4 covers biomarker research, which is central for Center for COPD research CeKOL (www.cekol.dk). Research into SP-D is also related to immuno-regulatory effects in both pulmonary and non-pulmonary disorders, eg. in asthma, COPD, obesity and atherosclerosis. Research into the ficolins was recently initiated and so far comprises the production of recombinant proteins and monoclonal antibodies and a study of novel ligands. The research into MFAP4 comprises the basal biochemical characterization of the molecule and characterization of gene deficient mice, including disease-models of neointima formation, asthma, COPD, aortic aneurysms and

hypertension.

International guest researchers:

2009 and 2010: post doc Annelyse Duvuoix, Cambridge University. 2010: associate professor Rania Jounblatt, Lebanese University. 2011: phd-student Daniele Salgado Bustos, Fraunhofer Institute for Molecular Biology and applied Ecology, Aachen (DE).

Current international collaborators:

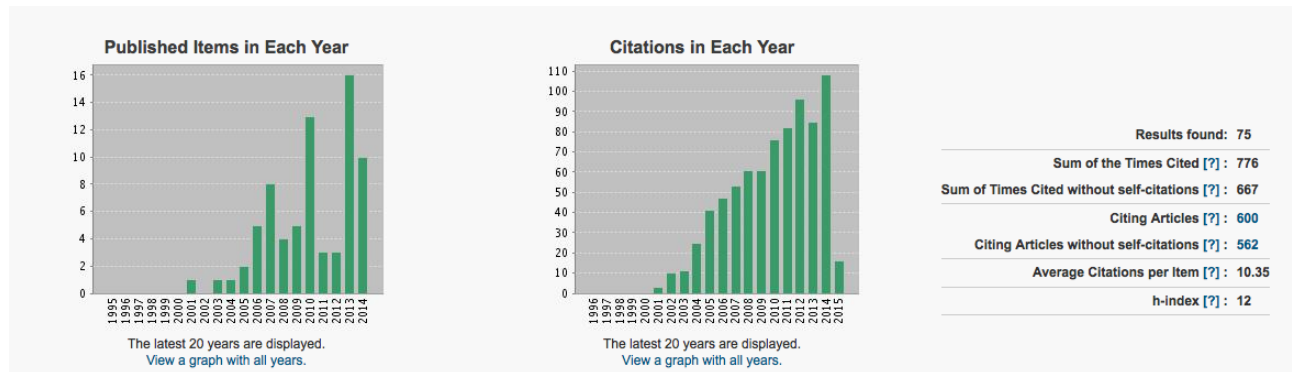
Guo Ping Shi, Associate Professor of Medicine, Brigham and Women's Hospital, Harvard Medical School, Boston. **Dr. Christopher S. Stevenson**, Research leader, Christopher S. Stevenson, Translational Biology, Respiratory Disease Area, Novartis Institutes for Biomedical Research, Horsham. **Dr Russell Wallis**, Departments of Infection, Immunity and Inflammation and Biochemistry, University of Leicester, Leicester, UK. **Howard Clark**, Professor and Head of Academic Department of Child Health, South Hampton General Hospital. **Barbara Sitek**, associate professor Department of Medical Proteomics/Bioanalytics, Medizinisches Proteom-Center, Ruhr-Universität Bochum, Germany. **Christian Mölleken**, Department of Internal Medicine, Bergmannsheil, Ruhr-Universität Bochum, Germany.

Supervision:

Main supervisor for 1 current post doc, 2 graduated and 5 current phd-students. Co-supervisor for 7 previous and 6 current phd-students.

Publications Grith Lykke Sørensen (Sorensen)

56 publications; 47 original manuscripts with peer review, 5 reviews, 1 thesis, 1 book chapter, 2 patents. 8 manuscripts as first author, 10 as last author. H-index =12 (web-of-knowledge).



Original manuscripts:

47. Andersen LB, Przybyl L, Haase N, von Versen-Höyneck F, Qadri F, Jørgensen JS, **Sorensen GL**, Fruekilde P, Poglitsch M, Szijarto I, Gollasch M, Peters J, Muller DN, Christesen HT, Dechend R. Vitamin d depletion aggravates hypertension and target-organ damage. *J Am Heart Assoc.* 2015 Jan 28;4(2).
46. Dubey LK, Moeller JB, Schlosser A, **Sorensen GL**, Holmskov U. Chitin enhances serum IgE in *Aspergillus fumigatus* induced allergy in mice. *Immunobiology.* 2015 Jan 14. pii: S0171-2985(15)00004-2.
45. Lambertsen KL, Ostergaard K, Clausen BH, Hansen S, Stenvang J, Thorsen SB, Meldgaard M, Kristensen BW, Hansen PB, **Sorensen GL**, Finsen B. No effect of ablation of surfactant protein D on acute cerebral infarction in mice. *J Neuroinflammation.* 2014 Jul 19;11(1):123.
44. Munk HL, Svendsen AJ, Hjelmberg JV, **Sorensen GL**, Kyvik KO, Junker P. Heritability assessment of cartilage metabolism. A twin study on circulating procollagen IIA N-terminal propeptide (PIIANP). *Osteoarthritis Cartilage.* 2014 Jul 4. pii: S1063-4584(14)01150-9.
43. Johansson SL, Roberts NB, Schlosser A, Andersen CB, Carlsen J, Wulf-Johansson H, Sækmose SG, Titlestad IL, Tornøe I, Miller B, Tal-Singer R, Holmskov U, Vestbo J, **Sorensen GL**. Microfibrillar-associated protein 4: A potential biomarker of chronic obstructive lung disease. *Resp Med.* 2014 Jun 20. pii: S0954-6111(14)00230-3.
42. **Sorensen GL**, Dahl M, Tan Q, Bendixen C, Holmskov U, Husby S. Surfactant Protein-D-Encoding Gene Variant Polymorphisms Are Linked to Respiratory Outcome in Premature Infants. *J Pediatr.* 2014 Jul 8. pii: S0022-3476(14)00492-2.
41. Shrive AK, Moeller JB, Burns I, Paterson JM, Shaw AJ, Schlosser A, **Sorensen GL**, Greenhough TJ, Holmskov U. Crystal structure of the tetrameric fibrinogen-like recognition domain of FIBCD1. *J Biol Chem* 2014 Jan 31;289(5):2880-7.

40. Dubey LK, Moeller JB, Schlosser A, **Sorensen GL**, Holmskov U. Induction of innate immunity by *Aspergillus fumigatus* cell wall polysaccharides is enhanced by the composite presentation of chitin and beta-glucan. *Immunobiology*. 2014 Mar;219(3):179-88.
39. Johansson SL, Tan-Q, Holst R, Christiansen L, Hansen NCG, Hojland AT, Wulf-Johansson H, Schlosser A, Titlestad IL, Vestbo J, Holmskov U, Kyvik KO, **Sorensen GL** (2014). Surfactant Protein D is a candidate biomarker for subclinical tobacco smoke-induced lung damage. *Am J Physiol Lung Cell Mol Physiol* 2014 May;306(9):L887-95. doi: 10.1152/ajplung.00340.2013.
38. Knudsen L, Ochs K, Boxler L, Tornøe I, **Lykke-Sorensen G**, Mackay RM, Clark HW, Holmskov U, Ochs M, Madsen J. Surfactant protein D (SP-D) deficiency is attenuated in humanised mice expressing the Met(11)Thr short nucleotide polymorphism of SP-D: implications for surfactant metabolism in the lung. *J Anat*. 2013 Dec;223(6):581-92.
37. Sækmoose SG, Schlosser A, Holst R, Johansson SL, Wulf-Johansson H, Tornøe I, Vestbo J, Kyvik KO, Barinton T, Holmskov U, **Sorensen GL**. "Enzyme-linked immunosorbent assay characterization of basal variation and heritability of systemic microfibrillar-associated Protein 4. *PLoS One*. 2013 Dec 4;8(12):e82383.
36. Wulf-Johansson H, Johansson SL, Schlosser A, Holm AT, Rasmussen LM, Mickley H, Diederichsen ACP, Munkholm H, Poulsen TS, Tornøe I, Nielsen V, Marcussen N, Vestbo J, Sækmoose SG, Holmskov U, **Sorensen GL**. Localization of microfibrillar-associated protein 4 (MFAP4) in human tissues: Clinical evaluation of serum MFAP4 and its association with various cardiovascular conditions. *PLoS One*. 2013 Dec 13;8(12):e82243.
35. Madsen J, **Sorensen GL**, Nielsen O, Tornøe I, Thim L, Fenger C, Mollenhauer J, Holmskov U. A Variant Form of the Human Deleted in Malignant Brain Tumor 1 (DMBT1) Gene shows Increased Expression in Inflammatory Bowel Diseases and Interacts with Dimeric Trefoil Factor 3 (TFF3). *PLoS One*. 2013 May 15;8(5):e64441.
34. Kjaer TR, Hansen AG, Sørensen UB, Holm AT, **Sørensen GL**, Jensenius JC, Thiel S. M-ficolin binds selectively to the capsular polysaccharides of *Streptococcus pneumoniae* serotypes 19B and 19C and of a *S. mitis* strain. *Infect Immun*. 2013 Feb;81(2):452-9.
33. Wulf-Johansson H, Thinggaard M, Tan Q, Johansson SL, Schlosser A, Christensen K, Holmskov U, **Sorensen GL**. Circulating surfactant protein D is associated to mortality in elderly women: A twin study. *Immunobiology*. 2013 May;218(5):712-7.
32. Vitashenkova N, Moeller JB, Leth-Larsen R, Schlosser A, Lund KP, Tornøe I, Vitved L, Hansen S, Willis A, Kharazova AD, Skjødt K, **Sorensen GL**, Holmskov U. Identification and Characterization of a Chitin-binding Protein Purified from Coelomic Fluid of the Lugworm *Arenicola marina* Defining a Novel Protein Sequence Family. *J Biol Chem*. 2012 Dec 14;287(51):42846-55.
31. Stidsen, JV, Khorooshi R, Rahbek MK, Kirketerp-Møller KL, Hansen PL, Bie P, Kejlting K, Mandrup S, Hawgood S, Nielsen O, Nielsen CH, Owens T, Holmskov U, **Sorensen GL**. Surfactant Protein D deficiency in mice is associated with hyperphagia, altered fat deposition, insulin resistance, and increased basal endotoxemia. *PLoS One*. 2012;7(4):e35066.

30. Moeller JB, Reichhardt MP, Nielsen MJ, Schlosser A, **Sorensen GL**, Nielsen O, Tornoe I, Gronlund J, Nielsen MI, Jørgensen JS, Nielsen ON, Mollenhauer J, Moestrup SK, and Holmskov U. CD163-L1 is a monocyte-macrophage differentiation marker regulated by inflammatory stimuli. *J Immunol*. 2012 Mar 1;188(5):2399-409.
29. Christensen AF, Hoegh SV, Lottenburger T, **Sorensen GL**, Tornoe I, Hørslev-Petersen K, Holmskov U, Junker P. Circadian rhythm and the influence of physical activity on circulating surfactant protein D in early and longstanding rheumatoid arthritis. *Rheumatol Int*. 2011 Dec;31(12):1617-23.
28. Duvoix, D, Miranda E, Perez J, **Sorensen GL**, Holmskov U, Trapnell B, Madsen J, Clark HW, Edwards LD, Miller BE, Tal-Singer RM, Lomas DA. Evaluation of full length, cleaved and nitrosylated serum Surfactant Protein D as biomarker for COPD. *Journal Of Chronic Obstructive Pulmonary Disease*. 2011 Apr;8(2):79-95.
27. Layden BT, Durai V, Newman MV, Marinelarena AM, Ahn CW, Feng G, Lin S, Zhang X, Kaufman D, Jafari N, **Sørensen G**, Lowe WL. Regulation of Pancreatic Islet Gene Expression in Mouse Islets by Pregnancy. *J Endocrinol*. 2010 Dec;207(3):265-79.
26. Hartshorn KL, White MR, Rynkiewicz M, **Sorensen GL**, Holmskov U, Head J, Crouch EC. Monoclonal antibody-assisted structure function analysis of the carbohydrate recognition domain of surfactant protein D. *Am J Physiol Lung Cell Mol Physiol*. 2010 Sep;299(3):L384-92.
25. Hartshorn KL, White MR, Smith K, **Sorensen G**, Kuroki Y, Holmskov U, Head J, Crouch EC. Increasing antiviral activity of surfactant protein d trimers by introducing residues from bovine serum collectins: dissociation of mannan-binding and antiviral activity. *Scand J Immunol*. 2010 Jul;72(1):22-30.
24. White MR, Boland P, Tecele T, Gantz D, **Sorenson G**, Tornoe I, Holmskov U, McDonald B, Crouch EC, Hartshorn KL. Enhancement of Antiviral Activity of Collectin Trimers through Cross-Linking and Mutagenesis of the Carbohydrate Recognition Domain. *J Innate Immun*. 2010;2(3):267-79.
23. Christensen AF, **Sorensen GL**, Hørslev-Petersen K, Holmskov U, Lindegaard HM, Junker K, Hetland ML, Stengaard-Pedersen K, Jacobsen S, Lottenburger T, Ellingsen T, Andersen LS, Hansen I, Skjodt H, Pedersen JK, Lauridsen UB, Svendsen A, Tarp U, Podenphant J, Vestergaard A, Jurik AG, Ostergaard M, Junker P. Circulating surfactant protein -D is low and correlates negatively with systemic inflammation in early, untreated rheumatoid arthritis. *Arthritis Res Ther*. 2010 Mar 8;12(2):R39.
22. Olesen, HV, Holmskov, U, Schiøtz, PO, **Sørensen, GL**. Surfactant protein D in cystic fibrosis J Cystic fibrosis. *J Cyst Fibros*. 2010 Jul;9(4):257-62.
21. Thomsen T, Moeller JB, Schlosser A, **Sorensen GL**, Moestrup SK, Palaniyar N, Wallis R, Mollenhauer J, Holmskov U. The recognition unit of FIBCD1 organizes into a noncovalently linked tetrameric structure and uses a hydrophobic funnel (S1) for acetyl group recognition. *J Biol Chem*. 2010, 285:1229-38

20. Hartshorn KL, White MR, Tecle T, **Sorensen G**, Holmskov U, Crouch EC. Viral aggregating and opsonizing activity in collectin trimers. *Am J Physiol Lung Cell Mol Physiol*. 2010, 298:L79-88.
19. Hoegh SV, **Sorensen GL**, Tornoe I, Lottenburger T, Ytting H, Nielsen HJ, Junker P, Holmskov U. Long-term stability and circadian variation in circulating levels of surfactant protein D. *Immunobiology*. 2010, 215:314-320.
18. **Sorensen GL**, Hoegh SV, Leth-Larsen R, Thomsen TH, Floridon C, Smith K, Kejling K, Tornoe I, Crouch EC, Holmskov U. Multimeric and trimeric subunit SP-D are interconvertible structures with distinct ligand interaction. *Mol Immunol*. 2009, 46:3060-9.
17. Hoegh SV, Voss A, **Sorensen GL**, Høj A, Bendixen C, Junker P, Holmskov U. Circulating surfactant protein D is decreased in systemic lupus erythematosus *J Rheumatol*. 2009, 36:2449-53
16. Wu YP, Liu ZH, Wei R, Pan SD, Mao NY, Chen B, Han JJ, Zhang FS, Holmskov U, Xia ZL, de Groot PG, Reid KB, Xu WB, **Sorensen GL**. Elevated plasma surfactant protein D (SP-D) levels and a direct correlation with anti-severe acute respiratory syndrome coronavirus-specific IgG antibody in SARS patients. *Scand J Immunol*. 2009, 69(6):508-15.
15. Lee MY, **Sorensen GL**, Holmskov U, Vanhoutte PM. The presence and activity of SP-D in porcine coronary endothelial cells depend on Akt/PI3K, Erk and nitric oxide and decrease after multiple passaging. *Mol Immunol*. 2009, 46:1050-7.
14. Hoegh SV, Lindegaard HM, **Sorensen GL**, Høj A, Bendixen C, Junker P, Holmskov U. Circulating Surfactant Protein D in early rheumatoid arthritis. A oneyear prospective study. *Scand. J Immunol* 2008, 67:61-76.
13. Tecle T, White MR, **Sorensen G**, Gantz D, Kacak N, Holmskov U, Smith K, Crouch EC, Hartshorn KL. Critical role for cross-linking of trimeric lectin domains of surfactant protein D in antiviral activity against influenza A virus. *Biochem J*. 2008, Jun 1;412(2):323-9.
12. Zhao XM, Wu YP, Wei R, Cai HX, Tornoe I, Han JJ, Wang Y, de Groot PG, Holmskov U, Xia ZL, **Sorensen GL**. Plasma surfactant protein D levels and the relation to body mass index in a chinese population. 2007, *Scand J Immunol*. 66:71-6.
11. Nybo M, Andersen K, **Sorensen GL**, Lolk A, Kragh-Sorensen P, Holmskov U. Serum surfactant protein D is correlated to development of dementia and augmented mortality. *Clin Immunol*. 2007, 123:333-7.
10. Hartshorn KL, White MR, Tecle T, Tornoe I, **Sorensen GL**, Crouch EC, Holmskov U. Reduced influenza viral neutralizing activity of natural human trimers of surfactant protein D. *Respir Res*. 2007, 8:9.
9. **Sorensen GL**, Petersen I, Thiel S, Fenger M, Christensen K, Kyvik KO, Sorensen TI, Holmskov U, Jensenius JC. Genetic influences on mannan-binding lectin (MBL) and mannan-binding lectin associated serine protease-2 (MASP-2) activity. *Genet Epidemiol*. 2007, 31:31-41.

8. **Sorensen GL**, Hjelmberg JV, Leth-Larsen R, Schmidt V, Fenger M, Poulain F, Hawgood S, Sorensen TI, Kyvik KO, Holmskov U. Surfactant Protein D of the Innate Immune Defence is Inversely Associated with Human Obesity and SP-D Deficiency Infers Increased Body Weight in Mice. *Scand J Immunol*. 2006, 64:633-8.
7. Hohwy T, Otkjaer K, Madsen J, **Soerensen G**, Nielsen O, Vestergaard C, Steiniche T, Holmskov U, Lomholt H. Surfactant protein D in atopic dermatitis and psoriasis. *Exp Dermatol*. 2006, 15:168-74.
6. **Sorensen GL**, Madsen J, Kejling K, Tornoe I, Nielsen O, Townsend P, Poulain F, Nielsen CH, Reid KB, Hawgood S, Falk E, Holmskov U. Surfactant protein D is proatherogenic in mice. *Am J Physiol Heart Circ Physiol*. 2006, 290:H2286-94.
5. **Sorensen GL**, Hjelmberg JV, Kyvik KO, Fenger M, Hoj A, Bendixen C, Sorensen TI, Holmskov U. Genetic and environmental influences of surfactant protein D serum levels. *Am J Physiol Lung Cell Mol Physiol*. 2006, 290:L1010-7.
4. Leth-Larsen R, Garred P, Jensenius H, Meschi J, Hartshorn K, Madsen J, Tornoe I, Madsen HO, **Sorensen G**, Crouch E, Holmskov U. A common polymorphism in the SFTPD gene influences assembly, function, and concentration of surfactant protein D. *J Immunol*. 2005, 174:1532-8.
3. Therland KL, Stubbe J, Thiesson HC, Ottosen PD, Walter S, **Sorensen GL**, Skott O, Jensen BL. Cyclooxygenase-2 is expressed in vasculature of normal and ischemic adult human kidney and is colocalized with vascular prostaglandin E2 EP4 receptors. *J Am Soc Nephrol*. 2004, 15:1189-98.
2. Uhrenholt TR, Schjerning J, Hansen PB, Norregaard R, Jensen BL, **Sorensen GL**, Skott O. Rapid inhibition of vasoconstriction in renal afferent arterioles by aldosterone. *Circ Res*. 2003, 93:1258-66.
1. Larsen MR, **Sorensen GL**, Fey SJ, Larsen PM, Roepstorff P. Phosphoproteomics: evaluation of the use of enzymatic de-phosphorylation and differential mass spectrometric peptide mass mapping for site specific phosphorylation assignment in proteins separated by gel electrophoresis. *Proteomics*. 2001, 1:223-38.

Reviews:

5. Lykkedegn S, Sorensen GL, Beck-Nielsen SS, Christesen HT. The impact of vitamin D on fetal and neonatal lung maturation. A systematic review. *Am J Physiol Lung Cell Mol Physiol*. 2015 Jan 16;ajplung.00117.2014
4. Lock-Johansson S, Vestbo J, **Sorensen G**. Surfactant protein D, Club cell protein 16, Pulmonary and activation-regulated chemokine, C-reactive protein, and Fibrinogen biomarker variation in chronic obstructive lung disease. *Respir Res*. 2014 Nov 25;15(1):147.
3. Qaseem AS, Sonar S, Mahajan L, Madan T, **Sorensen GL**, Shamji MH, Kishore U. Linking surfactant protein SP-D and IL-13: Implications in asthma and allergy. *Mol Immunol*. 2013 May;54(1):98-107.
2. Thomsen T, Schlosser A, Holmskov U, **Sorensen GL**. (2010) Ficolins and FIBCD1: Soluble and

membrane bound pattern recognition molecules with acetyl group selectivity. *Mol Immunol.* 2011 Jan;48(4):369-81.

1. **Sorensen GL**, Husby S, Holmskov U. Surfactant protein A and surfactant protein D variation in pulmonary disease. *Immunobiology.* 2007, 212:381-416.

Book chapter:

14. Palaniyar N, **Sorensen GL**, Holmskov U. Immunoregulatory roles of lung surfactant proteins. In *Animal Lectins: A Functional View*. Eds. by Gerardo R. Vasta and Hafiz Ahmed. CRC Press Inc (17 Sep 2007).

Monography:

Sorensen GL. The potential role of surfactant protein D in atherosclerosis. Ph.D. thesis. University of Southern Denmark, 2003.

Patents:

2. Schlosser A, Holmskov U, Sorensen GL, (2013) MFAP4 binding antibodies blocking the interaction between MFAP4 and integrin receptors. Application_P1183DK00.pdf Filed January 23. 2013.

1. Holmskov, U., Lyster, G.L., Madsen, J., and Tornøe, I. (2002) Surfactant protein D and atherosclerosis. PTC no.: P200201631 WO. 27. November, 2002.