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## EDUCATION AND ACADEMIC DEGREES:

1992            Graduated as mathematical student from Skanderborg Amtsgymnasium, Denmark.  
1996            B.Sc. in Chemistry-Biotechnology, Aarhus University, Denmark.  
12.01.2000    M.Sc. in Chemistry (Biotechnology), Aarhus University, Denmark.  
28.08.2002    Ph.D. degree in Science, The Faculty of Science, Aarhus University, Denmark.

## EMPLOYMENT:

1998-2002    Ph.D. student in the laboratory of Prof. Brian F.C. Clark and Associate Prof. Charlotte R. Knudsen, Department of Molecular and Structural Biology, Aarhus University, Denmark.  
01.02.2002 - 30.04.2002    Scientific assistant in the laboratory of Prof. Brian F.C. Clark, Department of Molecular and Structural Biology, Aarhus University, Denmark.  
01.05.2002- 30.04.2003    Scientific assistant in the laboratory of Torben Møller-Pedersen, MD, DMSc, Department of Ophthalmology, Aarhus University Hospital, Denmark.  
01.05.2003- 31.12.2006    Postdoctoral fellow in the laboratory of Prof. Jan J. Enghild, Department of Molecular Biology, Aarhus University, Denmark.  
01.01.2007 - 31.12.2008    Postdoctoral fellow in the laboratory of Prof. Dick Heinegård, Department of Experimental Medical Science, Lund University, Sweden, Biomedical Center, Lund University, Sweden.  
01.01.2009- 30.09.2009    Associate Prof., Center for Insoluble Protein Structures (inSPIN; Center of Excellence, Danish National Research Foundation) and the Department of Molecular Biology, Aarhus University, Denmark.  
01.10.2009-    Associate Prof. in Biotechnology, Department of Chemical Engineering, Biotechnology and Environmental Technology, Faculty of Engineering, University of Southern Denmark, Denmark.

## INTERNATIONAL RESEARCH STAYS:

1999            Research stay (during Ph.D. studies) in the laboratory of Dr. Barend Kraal, Leiden University, The Netherlands (2 weeks).  
2001            Research stay (during Ph.D. studies) in the laboratory of Prof. Marina V. Rodnina, University of Witten/Herdecke, Germany (3 weeks).  
2005            Visiting scientist in the laboratory of Prof. Gordon K. Klintworth, Duke University Medical Center, Durham, North Carolina, USA (1 month).  
2007-2008    Postdoctoral fellow in the laboratory of Prof. Dick Heinegård, Lund University, Sweden (2 years).  
2016            Visiting scientist in the research group of Prof. Ronald J. Quinn, Griffith University, Queensland, Australia (1 week).

## SCIENTIFIC IMPACT:

**Citation reports:** (ORCID ID: 0000-0002-4672-1503)

H-index, 13 (Web of Science) and 13 (google scholar); Cited 361 times (Web of Science) and 446 (google scholar); Average citations per item: 12.45; 29 entries (Web of Science); 24 articles/reviews (21 on PubMed, NCBI) and 5 published meeting abstracts in international peer-reviewed journals, one text book chapter.

### Academic authorships:

10 lead authorships, 13 co-authorships, and 1 senior authorship. Most of the articles are published in premier journals in protein chemistry and biochemistry, i.e. *Molecular & Cellular Proteomics*, *Journal of Biological Chemistry*, and *BIOCHIMICA ET BIOPHYSICA ACTA*, and several of them are in bibliometric authority level 2 journals (e.g. *Molecular & Cellular Proteomics*, *Journal of Biological Chemistry* and *Experimental Eye Research*).

## MAJOR RESEARCH GRANTS AND AWARDS:

Received more than 8.8 million DKK as Principal Investigator.

2002 Novo Nordic Ph.D. Plus Prize.

2003 Fight for Sight Denmark foundation (Værn om Synet) (350.000 DKK).

2005-2006 Post doc. stipend from the Carlsberg Foundation (933.984 DKK).

2007-2008 Post doc. stipend from the Danish Medical Research Council (848.927 DKK).

2015-2019 Grant (GUDP) from the Danish Ministry of Environment and Food (6.398.000 DKK). I am project leader of the entire 13.4 million DKK project.

#### **Other relevant major grants:**

2008-2012: Co-investigator on RO1 grant R01EY012712, National Institutes of Health (NIH), USA.

## **MANAGEMENT AND ADMINISTRATIVE EXPERIENCE:**

#### **Completed the following courses/programmes:**

2011 "Project management for researchers", University of Southern Denmark.

2013 "Kursus for ph.d.-vejledere", University of Southern Denmark.

2016 "SDU's Lederaspirantprogram" (SDU's Programme for Aspiring Leaders), University of Southern Denmark.

#### **Research management:**

I have managed or participated in the management of several large and small research projects.

#### **Administrative experience and official duties:**

2012- Member or chair of several MSc.Eng., MSc., and Ph.D. Evaluation Committees.

2013-2016 Vice chairman of the Department Council, Department of Chemical Engineering, Biotechnology and Environmental Technology, Faculty of Engineering, University of Southern Denmark.

2013- Member of the Education Committee, Department of Chemical Engineering, Biotechnology and Environmental Technology, Faculty of Engineering, University of Southern Denmark.

2017- Member of the Department Council, Department of Chemical Engineering, Biotechnology and Environmental Technology, Faculty of Engineering, University of Southern Denmark.

2017- Chairman of the Academic Council at the Faculty of Engineering, University of Southern Denmark.

2017- Member of the University Council (Universitetsrådet) at the University of Southern Denmark.

## **SUPERVISION:**

3 postdoctoral fellows, 7 Ph.D. students, 6 M.Sc.Eng. students, 3 M.Sc. students, 6 B.Sc.Eng. students, and 7 B.Sc. students.

## **TEACHING EXPERIENCE:**

I have been teaching both pre- and postgraduate students at the university-level during more than 60 course programmes covering 18 different courses including e.g. Protein Technology, Biochemistry, Organic chemistry, Advanced Natural Product Chemistry, Microbiology, and Molecular Biotechnology, comprising lectures, colloquia, theoretical, and practical/laboratory exercises.

## **REFEREE ACTIVITY:**

Ad hoc reviewer.

## **INVITED TALKS, POSTER PRESENTATIONS, AND PUBLICITY OF RESEARCH:**

More than 15 oral presentations and 20 poster presentations at national and international conferences/meetings. In addition, several of my research results have been described/covered in media interviews, magazines, newspapers, home pages, and radio and television broadcasts.

## **LIST OF PEER-REVIEWED ARTICLES:**

#### **Ammonia recovery from pig slurry using a membrane contactor-Influence of slurry pretreatment**

Zarebska, A., Karring, H., Christensen, M. L., Hjorth, M., Christensen, K. V. & Norddahl, B., Apr 2017, In: Water, Air and Soil Pollution. 228, 4, 13 p., 150.

#### **Membrane fractionation of herring marinade for separation and recovery of fats, proteins, amino acids, salt, acetic acid and water**

Fjerbæk Søtoft, L., Lizarazu, J. M., Razi Parjikolaei, B., Karring, H. & Christensen, K. V., 1. Aug 2015, In: Journal of Food Engineering. 158, August, p. 39-47 8077.

**Fouling mitigation in membrane distillation processes during ammonia stripping from pig manure**

Zarebska, A., Amor, A. C., Ciurkot, K., Karring, H., Thygesen, O., Prangsgaard Andersen, T., Hägg, M.-B., Christensen, K. V. & Norddahl, B., 15. Jun 2015, In: Journal of Membrane Science. 484, p. 119-132

**Fibril Core of Transforming Growth Factor Beta-Induced Protein (TGFB1p) Facilitates Aggregation of Corneal TGFB1p**

Sørensen, C. S., Runager, K., Scavenius, C., Jensen, M. M., Nielsen, N. S., Christiansen, G., Petersen, S. V., Karring, H., Sanggaard, K. W. & Enghild, J. J., 2015, In: Biochemistry. 54, 19, p. 2943-2956

**Comparison of two phenotypically distinct lattice corneal dystrophies caused by mutations in the transforming growth factor beta induced (TGFB1) gene**

Poulsen, E. T., Runager, K., Risør, M. W., Dyrland, T. F., Scavenius, C., Karring, H., Praetorius, J., Vorum, H., Otzen, D., Klintworth, G. K. & Enghild, J. J., 2014, In: Proteomics - Clinical Applications. 8, 3-4, p. 168-177

**Secreted major Venus flytrap chitinase enables digestion of Arthropod prey**

Paszota, P., Escalante-Perez, M., Thomsen, L. R., Risør, M. W., Dembski, A., Crespi, L. S., Nielsen, T. A., Karring, H., Thøgersen, I. B., Hedrich, R., Enghild, J. J., Kreuzer, I. & Sanggaard, K. W., 2014, In: BBA Proteins and Proteomics. 1844, 2, p. 374-383

**A Determination and Comparison of Urease Activity in Feces and Fresh Manure from Pig and Cattle in Relation to Ammonia Production and pH Changes**

Dai, X.-R. & Karring, H., 2014, In: PLOS ONE. 9, p. e110402

**Mutation in transforming growth factor beta induced protein associated with granular corneal dystrophy type 1 reduces the proteolytic susceptibility through local structural stabilization.**

Underhaug, J., Koldsø, H., Runager, K., Nielsen, J. T., Sørensen, C. S., Kristensen, T., Otzen, D., Karring, H., Malmendal, A., Schjøtt, B., Enghild, J. J. & Nielsen, N. C., 2013, In: BBA Proteins and Proteomics. 1834, 12, p. 2812-2822

**Serine protease HtrA1 accumulates in corneal transforming growth factor beta induced protein (TGFB1p) amyloid deposits**

Karring, H., Poulsen, E. T., Runager, K., Thøgersen, I. B., Klintworth, G. K., Højrup, P. & Enghild, J. J., 2013, In: Molecular Vision. 19, p. 861-876

**The insoluble TGFB1p fraction of the cornea is covalently linked via a disulfide bond to type XII collagen**

Runager, K., Klintworth, G. K., Karring, H. & Enghild, J. J., 2013, In: Biochemistry. 52, 16, p. 2821-2827

**Unique Structural Features Facilitate Lizard Tail Autotomy**

Sanggaard, K. W., Danielsen, C. C., Wogensen, L., Vinding, M. S., Rydtoft, L. M., Mortensen, M. B., Karring, H., Nielsen, N. C., Wang, T., Thøgersen, I. B. & Enghild, J. J., 2012, In: PLOS ONE. 7, 12, p. e51803

**The protein composition of the digestive fluid from the Venus flytrap sheds light on prey digestion mechanisms.**

Schulze, W. X., Sanggaard, K. W., Kreuzer, I., Knudsen, A. D., Bemm, F., Thøgersen, I. B., Bräutigam, A., Thomsen, L. R., Schliesky, S., Dyrland, T. F., Escalante-Perez, M., Becker, D., Schultz, J., Karring, H., Weber, A., Højrup, P., Hedrich, R. & Enghild, J. J., 2012, In: Molecular and Cellular Proteomics. 11, 11, p. 1306-1319 14 p.

**Composition and proteolytic processing of corneal deposits associated with mutations in the TGFB1 gene**

Karring, H., Runager, K., B. Thøgersen, I., K. Klintworth, G., Højrup, P. & Enghild, J. J., 2012, In: Experimental Eye Research. 96, 1, p. 163-170

**Human phenotypically distinct TGFB1 corneal dystrophies are linked to the stability of the fourth fas1 domain of TGFB1p**

Runager, K., Basaiawmoit, R. V., Deva, T., Andreasen, M., Valnickova, Z., Sorensen, C. S., Karring, H., Thøgersen, I. B., Christiansen, G., Underhaug, J., Kristensen, T., Westergård-Nielsen, N. C., Klintworth, G. K., Otzen, D. E. & Enghild, J. J., 2011, In: Journal of Biological Chemistry. 286, p. 4951-4958

**Differential expression and processing of transforming growth factor beta induced protein (TGFB1p) in the normal human cornea during postnatal development and aging**

Karring, H., Runager, K., Valnickova, Z., Thøgersen, I. B., Møller-Pedersen, T., Klintworth, G. K. & Enghild, J. J., 2010, In: *Experimental Eye Research*. 90, p. 57-62

Evidence against a blood derived origin for transforming growth factor beta induced protein in corneal disorders caused by mutations in the *TGFBI* gene

Karring, H., Valnickova, Z., Thøgersen, I. B., Hedegaard, C. J., Møller-Pedersen, T., Kristensen, T., Klintworth, G. K. & Enghild, J. J., 2007, In: *Molecular Vision*. 13, p. 997-1004

The human cornea proteome. Bioinformatic analyses indicate import of plasma proteins into the cornea

Karring, H., Thøgersen, I. B., Klintworth, G. K., Møller-Pedersen, T. & Enghild, J. J., 2006, In: *Molecular Vision*. 12, p. 451-60

A dataset of human cornea proteins identified by peptide mass fingerprinting and tandem mass spectrometry

Karring, H., Thøgersen, I. B., Klintworth, G. K., Møller-Pedersen, T. & Enghild, J. J., 2005, In: *Molecular and Cellular Proteomics*. 4, p. 1406-1408

The TSG-6 and Ial interaction cleaves the Ial protein-glycosaminoglycan-protein (PGP) cross-link. Evidence for reorganization of the Ial subunits during complex formation

Sanggaard, K. W., Karring, H., Thøgersen, I. B., Valnickova, Z. & Enghild, J. J., 2005, In: *Journal of Biological Chemistry*. 280, 12, p. 11936-42

Purification and structural characterization of Transforming Growth Factor Beta Induced Protein (TGFB1p) from porcine and human corneas

Andersen, R. B., Karring, H., Møller-Pedersen, T., Valnickova, Z., Thøgersen, I. B., Hedegaard, C., Kristensen, T., Klintworth, G. K. & Enghild, J. J., 2004, In: *Biochemistry*. 43, p. 16374-84

Proteomic analysis of the soluble fraction from human corneal fibroblasts with reference to ocular transparency

Karring, H., Thøgersen, I. B., Klintworth, G. K., Enghild, J. J. & Møller-Pedersen, T., 2004, In: *Molecular and Cellular Proteomics*. 3, p. 660-74

Qbeta-phage resistance by deletion of the coiled-coil motif in elongation factor Ts

Karring, H., Mathu, S. G., van Duin, J., Clark, B. F., Kraal, B. & Knudsen, C. R., 2004, In: *Journal of Biological Chemistry*. 279, 3, p. 1878-1884

Functional effects of deleting the coiled-coil motif in *Escherichia coli* elongation factor Ts

Karring, H., Bjornsson, A., Thirup, S., Clark, B. F. & Knudsen, C. R., 2003, In: *European Journal of Biochemistry*. 270, p. 4294-4305

Isolation, crystallisation, and preliminary X-ray analysis of the bovine mitochondrial EF-Tu:GDP and EF-Tu:EF-Ts complexes

Karring, H., Andersen, G. R., Thirup, S. S., Nyborg, J., Spremulli, L. L. & Clark, B. F., 2002, In: *BBA General Subjects*. 1601, p. 172-177