Personal Information Update Template for Staff Homepage

Given name: Andreas

Family name: Blennow

(Full name in passport: Per Gunnar Andreas Blennow)



Degree: Dr, PhD

Research Center: Science Center for Carbohydrates, Innovation Cerner for Cereal Science and Carbohydrate Research

Research Field: Starch Bioengineering

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Room 409, Science Center for Carbohydrates, Innovation Cerner for Cereal Science and Carbohydrate Research, Jiangnan University
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Personal Profile

Education Background

1988.04-1992.12 PhD, Doctor of Philosophy
1985.09-1988.03 Master of Science

1982.09-1985.06 Bachelor of Science

Work Experience

2026.03-present, Jiangnan University, School of Food Science and Technology, Professor

2025.10-2026.03, Guangdong Technion-Israel Institute of Technology, Professor

2024.07-2025.09 Plantcarb ApS and Blennow Holding AB (Sweden), Private Companies

2020.01-2024.06, University of Copenhagen, Research Group Leader, Professor

2000.12-2019.12, Royal Veterinary and Agricultural University of Denmark, Research Group Leader, Associate Professor

1998.09-2000.11, Royal Veterinary and Agricultural University of Denmark, Research Group Leader, Associate Professor

1996.05-1998.06, Royal Veterinary and Agricultural University of Denmark, Assistant Research Professor

Research Projects

[1] 2026.03-2029.02 Ministry of Industry and Information Technology (MIIT) and Jiangnan University, (China), 4 million RMB
[2] 2024.01-2027.06 “BioMarch” Independent Research Grant (Denmark), 6.51 million RMB
[3] 2019.1-2021.12 “Safe Packaging with Responsive INTERface – SPRINTER” Independent Research Grant (Denmark), 5.54 million RMB)
[4] 2019.10-2021.09, “ Smart Starch” Danish Innobooster (Denmark) 1.6 million RMB)
[5] 2014.01-2017.12 Plant Factory Hybrid Biopolymers for Future Materials-Related Applications” Independent Research Grant (Denmark) (6.0 million RMB)
[6] 2008.01-2011.12 Safe Feed Grain: New starch composition to reduce mycotoxin, Independent Research Grant (Denmark) (5.6 million RMB)

Representative Papers

Mikkelsen, R., Mutenda, K., Mant, A., Schürmann, P., and **Blennow, A.** (2005) α-glucan, water dikinase (GWD): A plastidic enzyme with redox-regulated and coordinated catalytic activity and binding affinity. *Proc. Natl. Acad. Sci.* 102/5, 1785-1790.

Carciofi, M, **Blennow A.,** Jensen, S.L., Shaik, S.S, Henriksen, A., Buléon, A., Holm, P.B., Hebelstrup, K.H. (2012) Concerted suppression of all starch branching enzyme genes in barley produces amylose-only starch granules *BMC Plant Biol.* 12, 223, 1-16.

Sorndech, W, Nakorn, KN, Tongta S, **Blennow A** (2018) Isomalto-oligosaccharides: recent insights in production technology and their use for food and medical applications. *Lebensmittel - Wissenschaft und Technologie,* 95, 135-142.

Roager HM, … **Blennow A,** … Licht, TR (2019) et al. Whole grain-rich diet reduces body weight and systemic low-grade inflammation without inducing major changes of the gut microbiome: a randomised cross-over trial. *Gut*, doi: 0.1136/gutjnl-2017-314786

Johansen, IE, Liu, Y, Jørgensen, B, Bennet, EP, Nielsen KL, **Blennow A**, Petersen, BL (2019) High efficacy full allelic CRISPR/Cas9 gene editing in tetraploid potato. *Sci Rep,* 9, 17715

Keeratiburana T, Hansen AR, Soontaranon S, Tongta S, Blennow A (2020) Porous rice starch produced by combined ultrasound-assisted ice recrystallization and enzymatic hydrolysis. *Int J Biol Macromol,* 145, 100-107.

Zhong Y, Qu JZ, Liu X, Ding LY Liu, Bertoft E, Petersen BL, Hamaker BR, Hebelstrup KH, **Blennow A** (2022) Different genetic strategies to generate high amylose starch mutants by engineering the starch biosynthetic pathways. *Carbohydrate Polymers*, 287, 119327, https://doi.org/10.1016/j.carbpol.2022.119327.

Kou T, Faisal M, Song J, **Blennow A** (2023) Stabilization of emulsions by high-amylose-based 3D nanosystem. *Food Hydrocoll 135*, 108171, https://doi.org/10.1016/j.foodhyd.2022.108171

Tian Y, Wang Y, Zhong Y, Møller MS, Westh P, Svensson B, **Blennow A** (2023) Interfacial enzyme kinetics reveals degradation mechanisms behind resistant starch. *Food Hydrocoll,* 140, 108621, https://doi.org/10.1016/j.foodhyd.2023.108621

Tian Y, Liu X, Petersen BL, Li H, Kirkensgaard JJK, Enemark-Rasmussen K, Khakimov B, Hebelstrup KH, Zhong Y, **Blennow A** (2024) Characterization of different high amylose starch granules. Part II: structure evolution during digestion and distinct digestion mechanisms. *Food Hydrocoll* 149, 109593.

Chen Y, Jiang, S, Wang, Y, Zhang F, Wang L, Zhao L, Liu S, Tan J, Persson S, Sun B, Chen J **Blennow A** (2024) Small-sized starch nanoparticles for efficient penetration of plant cells. *Chemical Communications*, 60, 14113-14116, https://doi.org/10.1039/D4CC05493H

Ding L, Yang J, Kirkensgaard JJK, Enemark-Rasmussen K, Chang J, Zhang L, Chen S, **Blennow A,** Zhong A (2025) Characterization of different high amylose starch granules. Part III: How starch fine structures affect retrogradation and formation of type 3 resistant starch. *Carbohydrate Polymers* 361, 123633

Blennow A, Hebelstrup KH, Petersen BL (2025) Starch biosynthesis and crop bioengineering. *Grain & Oil Science and Technology* 8/3, 235-245 https://doi.org/10.1016/j.gaost.2025.04.003

Liang W, Herburger K, Guo K, Kirkensgaard JJK, Hebelstrup KH, Persson S, Cheng S, Zhong Y, **Blennow A**, Ding L, (2025) The effects of supplemental irrigation on structure and digestion of normal barley starch and amylose-only barley starch *Carbohydrate Polymers,* 370, 124378

Li Z, Yu Tian, Kirkensgaard JJK, Svensson B, **Blennow A**, Wang Y (2026) Fabrication of small-sized starch nanoparticles and their inhibition of interfacial enzymatic hydrolysis of granular starch. *Innovative Food Science and Emerging Technologies* 11010448 https://doi.org/10.1016/j.ifset.2026.104488

Awards

1995: Australian National University Postdoctoral Fellowship
2005: Member, Expert Organizing Committee of the Moscow International Congress
2005-2008: Member of expert panel National Research Council FORMAS, Sweden, 2005, (deputy chair 2006, Chair 2008)
2007: EU CORE Organic, application assessment 2007, (Chair)
2011: Member, Swedish Committee for Agricultural Sciences and Spatial Planning
2013: Member, American Association of Cereal Chemists International (AACCI)
2016: Member, Organizing Committee of the European Starch Round Table Conference
2020: Nils Foss Excellence Award

Representative Patents

Jensen, S.L., Sørensen, O.B. and **Blennow, A.** (2012) Patent application PA 2012 00261: "Stabilization of starch granules using branching enzyme (E.C. 2.4.1.18)" submission date April 14, 2012.

Blennow A, Ulvskov P, Jørgensen B, Faisal M Nanocellulose composites for fully compostable bioplastics. WO2022049254-A1, Publication date: 19 October 2023, Publication number: US 20230331961

Dagmara Podzimska-Sroka, Kim Hebelstrup, Jan Mousing, **Andreas Blennow**, PCT/EP/2024/064828

Teaching Responsibilities

Nanobiotechnology, 240030 (7,5 ECTS, 2007-10, Initiator and Head of course, 45%) University of Copenhagen
Methods in Molecular Biology, 240072 (15 ECTS, 2008-11, Initiator and Head of course, 30%) University of Copenhagen
Post Genomic Plant Biology Summer Course, (6 ECTS, 2004-05, Head and contrib, 12,5%) University of Copenhagen
Naturstofkemi, lkeb10113 (3,75 ECTS, 2013-16, contributor, Head from 2014, 27,5%) University of Copenhagen
Wine Making and Beer Brewing, 250009 (7,5 ECTS, 2011-18 contributor, 5%) University of Copenhagen
Bioactive Components and Health, 270092 (7,5 ECTS, 2011-18 contributor, 5%) University of Copenhagen
Advanced Plant Polysaccharides, 240084 (7,5 ECTS, 2011-18, contributor, 15%) University of Copenhagen

From Plants to Bioenergy, 250075 (7,5 ECTS, 2008-18, contributor, 9%) University of Copenhagen
Biochemistry 2, 230003 (7,5 ECTS, 2007-18, contributor, 12,5%) University of Copenhagen
Bioinformatics 1, 240007 (7,5 ECTS, 2006-07, contributor, 10%) University of Copenhagen
Bioinformatics 2, 240007 (7,5 ECTS, 2008-09, contributor, 5%) University of Copenhagen
Molecular Biophysics, 220004 (7,5 ECTS, 2007, contributor, 5%) University of Copenhagen
Plant Biotechnology, 240038 (7,5 ECTS, 2009, contributor, 8%) University of Copenhagen
Molecular Plant Biochemistry and Physiology, 240028 (7,5 ECTS, 2006-11, contrib, 4%) University of Copenhagen
Plant Ecophysiology, 250030 (7,5 ECTS, 2002, contributor, 5%) University of Copenhagen
Thematic Course Plant Science, 250042 (15 ECTS, 2005, 2007, contributor, 5%) University of Copenhagen
Thematic Course Biotechnology, (15 ECTS, 2006, contributor, 5%) University of Copenhagen
Plantebiologi, (12 ECTS, 2003-05, contributor, 12,5%) University of Copenhagen
Advances in Plant Biology, (12 ECTS PhD course, 2005-11, contributor, 5%) University of Copenhagen
Bio-resource Technologies, (7,5 ECTS, 2010, KU-NAT, contributor, 2%) University of Copenhagen
Biochemistry for Natural Resource Education, NPLB16000U (7.5 ECTS, Head from 2017, 40%) University of Copenhagen
Technology of winemaking, Course 066226, 2 credits, Initiator and Head of course, 2025-2026, Guangdong Technion Israeli Institute of Technology
Micro-nano encapsulation for controlled release, Course 066334, 3 credits, Initiator and Head of course, 2025-2026, Guangdong Technion Israeli Institute of Technology
Advanced Carbohydrate Technology, Jiangnan University (2027, contributor, 10%)
Starch Biosynthesis and Bioengineering, Jiangnan University (2027, Initiator and Head of course, 100%)

Postgraduate Training
PhD students (main supervisor)
René Mikkelsen, Sept 2004:
Function and regulation of a-glucan, water dikinase (GWD), the starch phosphorylating enzyme.
Mikkel A. Glaring, March 2006:
The function of glucan water dikinase (GWD homologues in *Arabidopsis thaliana*.
Henrik Lütken, February 23, 2007:
New key points in starch degradation. The role of the Glucan Water Dikinases and Disproportionating Enzymes
Camilla Christiansen, 19 March 2009:

Investigation of Starch Binding Domains for Improvement of Starch degradation
Susanne Langgård Jensen, 3 March 2013:
Enzymatic Modification of Starch - Stabilization of granular starch using branching enzyme under extreme conditions
Shahnoor Sultana Shaik, December 2013:
Starch Bioengineering in Barley: Effects on Grain Quality, Metabolism and Physiology
Vanja Tanackovic, April 2014:
Brachypodium distachyon: the new cereal model plant for the characterization and biosynthesis of starch
Katsyarina Skryhan, November 21 2014:
Redox impact on starch biosynthetic enzymes in Arabidopsis thaliana
Waraporn Sorndech, May 10 2016:
Structural and digestion properties of soluble-, slowly digestible and resistant maltodextrin from cassava starch by enzymatic modification
Domenico Sagnelli, March 23 2017:
Characterization of GMO grains for the production of new bioplastics and food.
Thewika Keeratiburana, January 2018
Structural and physicochemical properties of granular rice starch modified by physical and enzymatic methods.
Yuyue Zhong, May 2021
Improving functional properties of normal maize starch granules by transglucosidase and branching enzyme.
Marwa Faisal, November 2022
Fabrication of colorimetric pH-indicator based on bioplastic support matrix and anthocyanins extracted from red cabbage
Wenxin Liang, October 2023
Supplemental Irrigation: A Critical Strategy for Boosting Crop Productivity and Starch Functionality.
Yu Tian, January 2024
Improving Resistant Starch – High Amylose Starch Multilevel Structure and Mechanism of Digestion.