Curriculum vitae

Anne Nørremølle

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M.Sc in biology from University of Copenhagen (1990); Ph.D. in medicine from University of Copenhagen (1995). Post Doc (1996-1999), assistant professor (2000-2006) and associate professor (from 2006) at Department of Cellular and Molecular Medicine (ICMM), University of Copenhagen. Member of the Section of Neurogenetics, a cross-institutional collaboration between The University Hospital Rigshospitalet and University of Copenhagen, focusing on genetic, molecular and cellular aspects of neurodegenerative disorders.

Major scientific results:
Genetic analyses confirming the diagnosis in Danish Huntington disease (HD) patients and families. Genetic analyses of patients with other neurodegenerative disorders. Analyses of the chromosomal region surrounding the HD gene identified genetic modifiers of Age at Onset in HD families. Investigation of mitochondrial DNA copy number showed a loss relative to nuclear DNA as HD progresses. Establishment of cellular model systems using human cell lines transiently transfected with vector constructs containing the HD mutation, and development of a lentiviral vector system for stable expression of the mutation in a different cell types. Exclusion of ion-channel formation by the expanded poly-glutamine huntingtin protein as the pathogenic mechanism leading to HD pathology. Characterization of antisense target sequences, using phosphothioate oligonucleotides and Locked Nucleic Acid oligonucleotides, for down-regulation of huntingtin expression. Investigations on HD patients, transgenic HD mice, and HD cell models confirmed periferal changes in metabolism, but indicated that these were not leading to increased incidence of diabetes in the patients. HD patients and transgenic mice showed reduced capacity for gluconeogenesis. Author or co-author of 36 papers printed in international journals with peer review, and 1 chapter in a book.

Teaching and administration:
Course administrator, lecturer and teacher in courses in Medical Genetics and Genetic Medicine for pre-graduate students of Medicine, Odontology, Human Biology and Molecular Biomedicine. Development of teaching forms and principles, including design of cases, tests and exercises. Participation in post-graduate courses for Ph.D.-students. Supervisor for several pre-graduate students, and principal supervisor for 4 Ph.D.-students.

Review and evaluation assignments:
Referee for international peer review journals, e.g. Human Molecular Genetics, Clinical Genetics and Human Genetics.
Member of the evaluation committees for Ph.D.-dissertations from the Universities of Copenhagen, Roskilde and Lund, Sweden.
Member of the Joint Examiner Corps for the Medical Studies in Denmark.

Participation in national and international research programmes:
Active member of the European Huntington Disease Network (EHDN) working groups on Biomarkers and Genetic Modifiers.

Selected publications:

Vinther-Jensen T, Larsen IU, Hjermind LE, Budtz-Jørgensen E, Nielsen TT, **Nørremølle A**, Nielsen JE, Vogel A. A clinical classification acknowledging neuropsychiatric and cognitive impairment in Huntington's disease. Orphanet Journal of Rare Diseases 2014 (in press).

Petersen MH, Budtz-Jørgensen E, Sørensen SA, Nielsen JE, Hjermind LE, Vinther-Jensen T, Borch Nielsen SM, **Nørremølle A.** Reduction in mitochondrial DNA copy number in peripheral leukocytes after onset of Huntington's disease. Mitochondrion 2014 May 15;17C:14-21.

Aidt FH, Nielsen SM, Kanters J, Pesta D, Nielsen TT, **Nørremølle A**, Hasholt L, Christiansen M, Hagen CM. Dysfunctional mitochondrial respiration in the striatum of the Huntington's disease transgenic R6/2 mouse model. PLoS Curr. 2013 Apr 2;5.

Josefsen K, Nielsen SMB, Campos A, Seifert T, Hasholt L, Nielsen JE, **Nørremølle A**, Skotte NH, Secher NH, Quistorff B. Impaired hepatic carbohydrate metabolism in Huntington's disease patients and in the R6/2 mouse model. Neurobiol Dis. 2010 Dec;40(3):656-62. Epub 2010 Aug 19.

Bech S, Petersen T, **Nørremølle A**, Gjedde A, Ehlers L, Eiberg H, Hjermind LE, Hasholt L, Lundorf E, Nielsen JE. Huntington's disease-like and ataxia syndromes: Identification of a family with a de novo SCA17/TBP mutation. Parkinsonism Relat Disord. 2010 Jan;16(1):12-5.

Boesgaard TW, Nielsen TT, Josefsen K, Hansen T, Jørgensen T, Pedersen O, **Nørremølle A**, Nielsen JE, Hasholt L. Huntington's disease does not appear to increase the risk of diabetes mellitus. J Neuroendocrinol. 2009 Sep;21(9):770-6.

Nørremølle A, Budtz-Jørgensen E, Fenger K, Nielsen JE, Sørensen SA, Hasholt L. 4p16.3 haplotype modifying age at onset of Huntington disease, Clinical Genetics 2009 Mar;75(3):244-50.

Reijonen S, Putkonen N, **Nørremølle A**, Lindholm D, Korhonen L. Inhibition of endoplasmic reticulum stress counteracts neuronal cell death and protein aggregation caused by N-terminal mutant huntingtin proteins. Exp Cell Res. 2008 Mar 10;314(5):950-60. Epub 2008 Jan 14.

Josefsen K, Nielsen MD, Jørgensen KH, Bock T, **Nørremølle A**, Sørensen SA, Naver B, Hasholt L. Impaired glucose tolerance in the R6/1 transgenic mouse model of Huntington's disease. J Neuroendocrinol. 2008 Feb;20(2):165-72. Epub 2007 Nov 22.

Lindquist SG, **Nørremølle A**, Hjermind LE, Hasholt L, Nielsen JE. Meiotic CAG repeat instability in spinocerebellar ataxia type 6: maternally transmitted elongation in a presumed sporadic case. J Neurol Sci. 2006 Feb 15;241(1-2):95-8. Epub 2005 Nov 28.

Nørremølle A, Hasholt L, Petersen CB, Eiberg H, Hasselbalch SG, Gideon P, Nielsen JE, Sørensen SA. Mosaicism of the CAG repeat sequence in the Huntington disease gene in a pair of monozygotic twins. Am J Med Genet A. 2004 Oct 1;130A(2):154-9.

Hasholt L, Abell K, **Nørremølle A**, Nellemann C, Fenger K, Sørensen SA. Antisense downregulation of mutant huntingtin in a cell model. J Gene Med. 2003 Jun;5(6):528-38.

Nørremølle A, Grunnet M, Hasholt L, Sørensen SA. Cells exposed to a huntingtin fragment containing an expanded polyglutamine tract show no sign of ion channel formation: results arguing against the ion channel hypothesis. J Neurosci Res. 2003 Jan 1;71(1):132-7.

Nellemann C, Abell K, **Nørremølle A**, Løkkegaard T, Naver B, Röpke C, Rygaard J, Sørensen SA, Hasholt L. Inhibition of Huntington synthesis by antisense oligodeoxynucleotides. Mol Cell Neurosci. 2000 Oct;16(4):313-23.

Nielsen JE, Sørensen SA, Hasholt L, **Nørremølle A**. Dentatorubral-pallidoluysian atrophy. Clinical features of a five-generation Danish family. Mov Disord. 1996 Sep;11(5):533-41.

Nørremølle A, Nielsen JE, Sørensen SA, Hasholt L. Elongated CAG repeats of the B37 gene in a Danish family with dentato-rubro-pallido-luysian atrophy. Hum Genet. 1995 Mar;95(3):313-8.

Nørremølle A, Sørensen SA, Fenger K, Hasholt L. Correlation between magnitude of CAG repeat length alterations and length of the paternal repeat in paternally inherited Huntington's disease. Clin Genet. 1995 Mar;47(3):113-7.

Nørremølle A, Riess O, Epplen JT, Fenger K, Hasholt L, Sørensen SA. Trinucleotide repeat elongation in the Huntingtin gene in Huntington disease patients from 71 Danish families. Hum Mol Genet. 1993 Sep;2(9):1475-6.

Andrew S, Theilmann J, Almqvist E, **Norremolle A**, Lucotte G, Anvret M, Sorensen SA, Turpin JC, Hayden MR. DNA analysis of distinct populations suggests multiple origins for the mutation causing Huntington disease. Clin Genet. 1993 Jun;43(6):286-94.

Riess O, **Noerremoelle A**, Soerensen SA, Epplen JT. Improved PCR conditions for the stretch of (CAG)n repeats causing Huntington's disease. Hum Mol Genet. 1993 Jun;2(6):637. Erratum in: Hum Mol Genet. 1993 Sep;2(9):1523.

Nørremølle A, Sørensen SA, Arctander P. Nucleotide sequence and PCR-amplification of a polymorphic MboI site in human DNA marker D4S95 linked to the Huntington disease locus. Clin Genet. 1992 Oct;42(4):210-1.