Referat fra diskussion om brug af midler fra Aarhus forskningsfond til opbygning af stress-netværk efter 7. stress-møde i Skejby den 30.10.2007:

At de kommende årsmøder af stressnetværket bliver holdt som følgende:
Stressgruppen ved Biologisk Institut står for mødet i 2008. Mødet blev aftalt at finde sted den 10. september 2008 fra ca. kl. 10.00-17.00 på Afdelingen for Genetik og Økologi, Ny Munkegade, Bygning 1540, 2. etage (Volker, Jesper, Pernille, Corneel m.fl.); derefter er det Medicinsk Biokemis tur (Poul Henning og Marina), biogerontologi-gruppen (Suresh), humangenetik (Lars og Thomas C), Foulums tur (Peer, Peter, Torsten, Jan, Birthe, Karen, Jette m.fl..) og så igen Skejby (Peter og Niels)

At de kommende foredragsrækker bliver holdt som følgende:
NF står for foredragsrækken i 2008 (ansvarlig: Volker Loeschcke og Biol. Inst.),
Sund står for foredragsrækken i 2009 (ansvarlig: Niels Gregersen. Peter Bross og Poul Henning Jensen) og
Jord står for foredragsrækken i 2010 (ansvarlig: Peer Berg og Foulum gruppen),
og endnu ikke fastlagt for 2011.

At mini-symposier/workshops om stressrelevante emner bliver holdt som følgende:
Sund NF står for organisation i 2008 (ansvarlig: Niels Gregersen og Poul Henning Jensen),
Jord står for organisation i 2009 (ansvarlig: Peer Berg og Foulum gruppen),
NF står for organisation i 2010 (ansvarlig: Volker Loeschcke og Biol. Inst),
- og der er ingen workshop i 2011

Som foreslået i ansøgningen bliver Volker Loeschcke formand for netværket og Niels Gregersen og Peer Berg bliver medlemmer af styrelseskomiteen – og der blev ikke valgt flere på mødet.

Følgende oprindelige (første kolonne)/reviderede (anden kolonne) budget blev diskuteret og vedtaget:

Yearly meeting (60 persons)	6.000	6.000
external speakers	20.000	15.000
Lecture series fall 8 - 10 lectures	65.000	55.000
Guests – ca 6 months per year	103.000	84.000
Travel supp. for Ph.d. stud./post-docs mm		
(visits to other labs) – now only visits	40.000	10.000
Ph.d. courses, now workshops (only 3)	50.000	50.000
Other items incl. webpage	16.000	10.000
Total	300.000	230.000

Vi har modtaget det fulde søgte beløb af 300.000 Kr. for 3 år, som vi må bruge til udgangen af 2011, dvs. strække over 4 år plus mødet i 2007 for ca. 6.000 og evt. små

andre udgifter i 2007. Dermed har vi disponeret 4 x 230.000 + 6.000, minus 50.000 (da vi kun holder 3 workshops – og har dermed lidt ekstra luft for uforudset udgifter)

Vores beslutning indebærer, at der ikke er penge til at ph.d. studerende tager på kongresrejse, men der er mulighed for et lille tilskud til at besøge et andet laboratorium. Ph.d. kurser bliver til workshops/mini-symposier og de ansvarlige blev udpeget for de 3 første år (og møderne skal kun holdes 3 gange). Møderne skal annonceres på websiden og være i princippet åben til alle medlemmer af stressnetværket.
Der kan indsendes ansøgninger til VL ang. invitation af udenlandske gæster med kort argumentation for, hvorfor man vil invitere gæsten (gæsten skal helst holde foredrag, som annonceres på websiden).
Foredragsrækkerne bliver holdt under ansvar af de ovennævnte personer, men af de cirka 10 foredrag må der gerne stilles forslag at et enkelt eller to foredrag bliver holdt hos andre end de ansvarlige faggrupper.

Information om tidligere møder i stressgrupper samles på websiden.

Alle interesserede fra AU kan skrive sig op som medlemmer af netværket og modtager derefter info. Alle adresser samles på websiden og foredragsinformation/information om workshops m.m. sendes til alle som står på websiden.

Den oprindelige ansøgning til forskningsfonden:

DEPARTMENT OF GENETICS AND ECOLOGY
INSTITUTE OF BIOLOGICAL SCIENCES
UNIVERSITY OF AARHUS

Volker Loeschcke, professor, PhD
Biologisk Institut
Aarhus Center for Environmental Stress Research
Department of Genetics and Ecology
University of Aarhus
Ny Munkegade, Build. 1540,
DK-8000 Aarhus C, Denmark

E-mail: biovl@biology.au.dk
Tlf. +45-8942 3268
Fax +45-8942 2722

Århus, den 14.11. 2006

Til AUs forskningsfond

Vedr. opbygning af netværk inden for stressforskning ved Aarhus Universitet omfattende forskere ved fakulteterne for naturvidenskab, medicin og landbrug (tidligere Danmarks Jordbrugsforskning) samt ved AU's nye miljøinstitut (tidligere DMU).

Vi søger hermed om tilskud til at opbygge "stress" som et visionært forskningsområde ved Aarhus Universitet. Formålet er at udvide og forbedre infrastrukturen indenfor stressforskning, hvor forskere fra de naturvidenskabelige og medicinske fakulteter, det nye fakultet for landbrug, samt det nye Miljøinstitut ved AU skaber et netværk med henblik på at fremme den tværfaglige forskning og udvikle tværfaglig forskningsrelateret undervisning (ph.d. kurser mm).

Stress er et spirende forskningsområde med store faglige visioner. Med støtte til infrastruktur, gæster og ph.d. kurser kan vi skabe et stærkt tværfagligt forskningsfelt med mange potentielle deltagere med høj forskningsprofil. Emnet har store og vigtige implikationer for miljøændringer (*global change*) og bevaring af biodiversitet, for husdyr- og planteavl, husdyrvelfærd, for medicin i relation til genetiske sygdomme samt stressrelaterede livsstilssygdomme, den aldrende befolknings sundhed og indenfor folkesundhed generelt. Samtidig giver vores initiativ en unik mulighed for at integrere de nye medlemmer af AU, landbrugs- og miljøvidenskab, indenfor et meget aktuelt emne af stor samfundsmæssig betydning.

Forskning i stress vil inspirere til tværfagligt samarbejde mellem mange discipliner såsom molekylær biologi, molekylær medicin, økofysiologi, evolutionær biologi, etologi, husdyr- og planteavl, celleforskning, molekylær gerontologi, folkesundhed, klinisk psykologi samt specifikke sygdomsgrupper som kræft og neurodegenerative sygdomme. Desuden har forskningsområdet grænseflader til biofysik, analytisk kemi, socialvidenskab og andre discipliner. Over de sidste år er der blevet afholdt seks videnskabelige seminarer med deltagelse af mange af disse faglige miljøer samt en række projektmøder om specifikke emner.

Støtte fra Aarhus Forskningsfond vil styrke infrastrukturen for stressforskning ved AU, og tillade en hurtig opblomstring af et visionært forskningsområde på et perfekt tidspunkt, således at de Århusianske stress-forskningsgrupper kan bevare og udbygge deres ledende

internationale position ved at styrke tværfaglige interaktioner. Et af de fælles mål vil være at udvikle et stressometer, d.v.s. en objektiv måde at kvantificere den mængde stress som mennesker såvel som modelorganismer er udsat for og kan tåle.

Mvh

Volker Loeschcke, Niels Gregersen og Peer Berg

Stress – an emerging field of research with visionary perspectives

Biological stress can be defined as a condition that challenges the performance and function of cells and organisms. The stressor can be either extrinsic, such as environmental conditions (heat, cold, radiation, salt, physical constraints etc.), starvation, dehydration, heavy-metal, pesticides and other pollutants, psycho-social and disease or intrinsic, such as ageing as well as genetic defects/variations, including molecular changes leading to common diseases.

While these different stressors may appear unrelated, they all disturb normal function as well as homeostasis (or homeodynamics) at the molecular, cellular and organismic levels and induce damage to genomic and cellular structures. This universal feature of cellular stress is shared among all organisms and has probably existed ever since life evolved and it is therefore not surprising that natural selection has resulted in a suite of biochemical, physiological and behavioural counter-measures that can aid to alleviate stress-induced problems. The biological responses include DNA repair, antioxidative and chaperone systems, where induction of heat shock proteins represent a prominent example. The responses to stress are pivotal to the survival of any individual and an understanding of their mechanisms is an essential component of virtually all disciplines within life sciences.

Stress is currently being studied by several research groups at the newly expanded Aarhus University dealing with the basic science of genetics, cell biology, evolution, ethology, physiology, chemistry and gerontology, but is also of fundamental importance in molecular and clinical medicine, animal and plant production, animal welfare and environmental sciences. There is a vast potential for major advances in understanding the mechanisms that allow organisms to cope with stress, the cellular response and its implications by bringing researchers from these different disciplines together in pursuit of the same questions yet with different model systems.

Why is stress research a visionary field and what are its long-term implications?

An understanding of the mechanisms of stress is essential for virtually all life sciences and must be studied at all levels of biological organization. Thus, while cellular and molecular studies establish the mechanisms of stress, their physiological consequences must be understood at the level of the organisms, while the effects on fitness needs to be assessed at the level of population genetics along with environmental studies. When combining these approaches, it is possible to predict how organisms perform under different environmental conditions, and to evaluate how and whether organisms may adapt to global change. Although relatively unstudied, stress research is also basic to animal and plant breeding and production, presentation and severity of genetic diseases, public health and psychology. Indeed, the common sporadic late-onset diseases likely reflect individual’s different long-term abilities to combat disease promoting stress.

While there is convincing evidence that mild stress can stimulate a wide variety of biological functions and even delay the ageing process, the significance of mild stress for individual fitness and health, evolutionary processes, and population sustainability is far from clear. One of our aims therefore will be to develop quantitative approaches for detecting and assessing biological responses to low levels of stress on various aspects of biological function in organisms ranging from prokaryotes to humans.

Research items and challenges

The major challenge for stress research will be to integrate the knowledge from different disciplines within natural, agricultural and medical sciences and to fully exploit the rapid development in the various "-omics" techniques. However, given that many of the same proteins are activated by environmental stress, inbreeding, protein folding diseases in humans and psychosocial stress, the recent advance of molecular techniques provide a very promising avenue to identify candidate genes (transcriptomics), metabolites (metabolomics) and proteins (proteomics) followed by studies at the organismic and population levels to assess the wider implications. Most studies should be concentrated on a limited number of candidate species with a mapped genome, but as the number of sequenced genomes and the ability to rapidly construct cDNA libraries are rapidly increasing, we view it as very likely that knowledge can be readily transferred to non-candidate species that may be of highest importance for fighting disease in humans, domestic animals and crop plants. At the same time the proposed research will contribute to understand one of today's major questions within all biological disciplines: What is the relationship between variation at the DNA level and variation in function and phenotype, such as clinical features? Also, how does this relate to the fitness of an individual in its specific environment?

Climatic stress can be used as one model for environmental stress because most organisms, under normal conditions, are exposed to temporal and spatial fluctuations in temperatures and because many species inhabit thermal environments that directly induce stress responses. Given that different stress responses can be remarkably similar even when they are induced by different stressors, results obtained for the climatic stress model system can be extrapolated to other forms of stress. Studies on gene expression patterns during the stress response provide basic insight into the primary cellular responses to stress. Indeed, heat stress results in denaturation and damage to proteins leading to misfolding. Thus misfolded protein stress, which is seen in many diseases, such as neurodegenaration, can be viewed in the same conceptional framework as environmental stress.

International status

Stress research is receiving mounting international recognition in many different fields of natural, environmental, agricultural and medical sciences. This is reflected in a number of recent special issues of high impact journals that are devoted to stress related topics and that several international conferences have stress as an item of special symposia and workshops, attesting to growing international awareness that a better understanding of stress will be a major player in fighting disease in all organisms

Scientists working on stress at AU incl. the new partners from DIAS and DMU have wide international experience, an excellent reputation and currently entertain collaborations on all major continents with an exchange of students as well as post doctoral fellows.

Existing infrastructure

Several of the groups involved in this application have already met over the last four years at six workshops with an average of 40 to 50 participants to discuss major advances

in their fields of research and to initiate cross-disciplinary research. Several joint publications have already emerged from these interactions and more are to come.

Further, within biology there is a research school on environmental stress research (GESS), involving several of the Danish Universities and governmental research institutions (DMU, DIAS), a NORDIC network on stress, an ESF network with strong interest in stress (ConGen) and a network on Thermal Adaptation. The Natural Science Faculty at AU has identified "biological stress" as one of its four emerging focus areas ("spirende kerneområder") and the coming agricultural faculty (DIAS) has research groups dedicated to stress biology. In plant and animal breeding and animal welfare stress has become a major area of research, and in medicine many groups work on protein-folding-related diseases and impacts of stress on human health. In occupational medicine, stress is one of the times major problems.

Much of the research on stress can have a major economic impact, in helping in risk assessment, preventing disease and as a basis for rational responses to global change, thereby becoming an important tool for the development of efficient strategies for the management of health and environmental risk factors.

Who would benefit from "stress" as visionary research field?

Below is a short list of heads of research groups that could benefit from "stress" as a visionary field supported by Aarhus Forskningsfond::

AU, NF, Biology: Prof. V. Loeschcke, Prof. Tobias Wang, Prof. Roy Weber, their colleagues and research groups incl. several research council postdoctoral stipends, as Skou and Steno stipends

AU: NF, Molecular Biology: Res. Prof. Suresh Rattan, Assoc. Prof. Just Justesen and groups

AU: Medicine, Human genetics: Prof. Lars Bolund and group

AU, Medicine, Molecular Medicine: Prof. Niels Gregersen, Assoc. Prof. Peter Bross and groups

AU, Medicine: Medical Biochemistry: Prof. Poul Henning Jensen and group

AU, Medicine, University Hospital, Occupational Medicine: Prof. Jens Peter Bonde and group

AU, Medicine, University Hospital, Psychooncology Research Unit and Institute of Psychology: Prof. Robert (Bobby) Zachariae

AU: Agricultural Sciences (formerly DIAS): Head of research group Peer Berg, colleagues and groups in Genetics and Biotechnology as well as in Animal Welfare

AU: Agricultural Sciences (formerly DIAS): Research Professor Christian Bendixen and group

AU: Agricultural Sciences (formerly DIAS): Head of research group Birte L. Nielsen and group

AU: Agricultural Sciences (formerly DIAS): Senior Scientist Emøke Bendixen and group

AU: Agricultural Sciences (formerly DIAS): Senior Scientist Jan Stagsted and group

AU: Agricultural Sciences (formerly DIAS): Senior Scientist Karin Hjelholdt and group

AU: Agricultural Sciences (formerly DIAS): Senior Scientist Jette Young and group

AU: Environmental Science (formerly DMU, Terrestrial Ecology): Res. Prof. Martin Holmstrup and group in Silkeborg

Other members from the faculties of Natural Sciences, Medicine and the new faculty of Agricultural Sciences as well as from the former Danish Environmental Research Institute (DMU) are most welcome to join, and we encourage members from other faculties, particularly from the faculties for Social Sciences and Humanistics to participate.

Aministration: The network is hosted by the Institute of Biology, AU, with Volker Loeschcke as chairman, prof. Niels Gregersen (Skeiby) and head of research group Peer Berg (Foulum) as co-chairmen. The steering committee will consist of 5 members, with maximally one member of each major participating institution/group. Besides the chairman and co-chairmen the head of groups will decide who will become members, and after two and three years some of the steering committee members will be replaced, so that in time all groups will have had opportunity to be represented in the committee.

Budget for the AU Stress Network:

Yearly full day meeting – 60 persons incl. lunch and coffee :	6.000
with 2 invited external speakers (1 European/1 from overseas incl. accommodation and per diem (250 DK) for approx. one week)	20.000
Lecture series each fall: 10 lecturers (airfare/train (2000/3500/ 10000) + hotel (2 x 800 DK) + dinner for speaker + host(s) (approx. 700 DK) (4 from Danmark/Scandinavia, 4 from Europe and 2 from overseas)	65.000
Guests: 6 months per year with transport, accommodation and a per diem of 250 DK per day: in total	103.000
(there off per diem: 6x30x250=45.000; guest appartment: 6x6000= 36.000; travel: on average 3 people, with 2 at 5.000 and 1 at 12.000 =22.000	
Travel support for ph.d. students/post-docs to workshops/conferences:	40.000
Support to ph.d. course on stress (20 to 30 people over 5 days with approx. 1/3 being foreign students) covering travel for 2 external teachers	50.000
Web page	10.000
Other items	6.000
total expenses per year:	300.000
and over 5 years: 5 x 294.000 =	**1.500.000**

cc: 1 page CV for group leaders involved in the application and list of publications for chairman and co-chairmen

Brev send den 7.7.2007, som senere blev imødekommet af Forskningsfonden:

Til Aarhus Universitets Forskningsfond

Århus, den 7.7.2007

Vedr.: Bevilling til opbygning af stress netværk ved Aarhus Universitet – forespørgsel om at kunne bruge bevillingen i perioden 1.9.2007 til 31.12.2011 (AUFF ansøgning 256 søgt af professor Volker Loeschcke, Biologisk Institut, Det Naturvidenskabelige Fakultet, i samarbejde med Professor Niels Gregersen, Skejby, Det Sundhedsvidenskabelige Fakultet og Forskningsleder Peer Berg, Foulum, Det jordbrugsvidenskabelige Fakultet)

Vi er meget glade for bevillingen og tror at pengene virkelig vil gøre en forskel for stress-forskningen ved Aarhus Universitet. Vi synes, at det vil være gavnligt for netværket hvis vi kunne bruge pengene over en lidt længere periode end 3 år, ligesom det var planlagt i den oprindelige ansøgning. Dette vil muliggøre at vi kunne bedre integrere grupper som endnu ikke er aktive i de årlige stressmøder og stress-forelæsninger, som enkelte grupper har organiseret. Stressgruppe-mødet for i år er allerede planlagt før vi fik kendskab til bevillingen, og programmet er fyld op. Det er også for sent at invitere til en forelæsningsrække i efteråret 2007, og derfor vil det være godt, hvis vi kunne udvide bevillingsperioden.

Vi vil derfor bede om lov at bruge pengene over de næste godt 4 år i stedet for over 3 år, med start den 1.9.2007 og slut den 31.12.2011. Budgettet vil indeholde de samme budgetposter som i vores ansøgning, men vi vil tilsvarende skære i de årlige udgifter, så totalbeløbet bliver uændret og brugt til de formål, der blev søgt om.

Med venlig hilsen

Volker Loeschcke Niels Gregersen Peer Berg

CV: VOLKER LOESCHCKE

Affiliation: Professor, PhD, Institute of Biology, Ecology and Genetics, University of Aarhus, Ny Munkegade, Buildg. 540, DK-8000 Aarhus C, Denmark; E-mail: volker.loeschcke@biology.au.dk, fax: +45-8942 2722, tlf.: +45-8942-3268 (work), +45-86270948 (home).

Familiar background: Born 1950, March 24 in Göttingen, FRG. German citizen, married with Anne-Marie Christiansen (Danish citizen); 4 children

Education: M.Sc. (mathematics) in 1974, Ph.D. (genetics) in 1978, and Dr. habil. (population biology), 1985, all at Freie Universität Berlin, Germany.

Positions held: Research Assistant, Freie Univ. Berlin, Berlin, FRG, 1977-1981; Senior Lecturer, 1981-1988; Assoc. Prof./Reader, 1988-1996; Research Professor, 1996-1997; Full Professor/Chair, 1997-, all at Dept. of Ecology and Genetics, Univ. of Aarhus, Denmark

Editorships: Journal of Evol. Biol., Editor 1987-1992; Genetics, Selection Evolution, Intern. Adv. Board:1998-2000; Ecology Letters, Editorial Board 2000-2004, Insect Science, Editorial Board, 2004-; Biogerontology, Editorial Board, 2005-

Offices: Executive Vice-President, Europ. Society for Evol. Biology, 1987-1993; councillor of Scandinavian Geneticist Society, 1989-1991; member of the Natural Science Research Council in Denmark (Aug. 1995-2000); member of The Royal Danish Academy for Sciences and Letters (from 1996); member of the interim steering committee of the OECD Global Science Forum on "global biodiversity information facility" (GBIF); member of the Research Council for Research in Developing Countries (RUF) (from 1999-2001); member of the council of the European Society for Evol. Biology (1999-2001) and host of the 8th meeting of this society in 2001 in Aarhus, Denmark. Member of various committees of the Danish ministery for agriculture, e.g. on strategies to preserve genetic resources in domestic animals. Member of several Nordic and Europena Networks on stress, thermal adaptation and conservation genetics related research. Member of international evaluation committees for centers, research institutes or research and teaching initiatives. Head of the Aarhus Center of Environmental Stress Reseach (ACES), initiated by the Danish Natural Sciences Research Council.

Research Interests: Population Biology and Evolution (Evolutionary Genetics, Evolutionary Ecology, Evolutionary Biology), Stress, Adaptation to Extreme Environments, Thermal Adaptation, Conservation Biology, Biodiversity.

Professional activities: Has been supervisor for more than 25 PhD and 50 MSc. students, host for many post-doctoctoral scientists and sabbatical researchers for long term resarch co-operation,

published more than 150 papers in reviewed international journals, co-edited five monographs, invited speaker, plenary speaker or invited workshop (co-)organizer at many international or society meetings. Guest researcher at Stanford Univ., Palo Alto, Washington Univ., St. Louis, UC Davis, Davis, Univ. of New England, Armidale, NSW, Center of Environmental Stress and Adapatation Research, Melbourne and Institute of Advanced Studies, La Trobe Univ., Melbourne, Victoria.

Ministry of Food, Agriculture and Fisheries
Danish Institute of Agricultural Sciences

CURRICULUM VITAE
PEER BERG

Department of Genetics & Biotechnology
Danish Institute of Agricultural Sciences
Research Centre Foulum
P.O. Box 50

OFFICE: +45 8999 1226
FAX : +45 8999 1300
HOME : +45 8665 3021
E-MAIL :Peer.Berg@agrsci.dk

My scientific work aims at contributing to the development of theory and methods used for genetic improvement, in particular to contribute to the understanding of genetic variation in traits of importance and contribute to theory on artificial and natural selection.

Born 1963, Assens Denmark
Married, one child

Academic degrees

1993 Ph.D. The Royal Veterinary and Agricultural University, Denmark

Participated in 12 post-graduate courses in the fields of quantitative and population genetics.
Accomplished 4 Project management courses, focusing on project management, EU applications and reporting and personnel management.
During 2004 accomplished “Research Management Course – uddannelse af forskningsledere” by Copenhagen Business School.

Recent appointments

2005 onwards	Coordinator of fur animal research at The Danish Institute of Agricultural Sciences, including coordination of collaboration with the industry
2002 onwards	Head of research unit “Population Genetics and Embryology”.
2001 onwards	Appointed “adjungeret” ass. professor at the Royal Veterinary and Agricultural University.
1999	Visiting senior scientist at the University of New England

(co)Supervision of 10 ph.d. students (4 on-going)
Reveiwer of papers for 6 journals and applications to research councils in three countries.

PUBLICATIONS

During the last 5 years (co)authored 14 papers in refereed journals, coauthored two books and above 70 presentations at international and national meetings and in popular journals.
For the latest updated list of publications, see
http://web.agrsci.dk/arspublikationer/publiresultforfat.asp?forfatter=1212

Suresh Rattan

Work addre Department of Molecular Biology
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Gustav Wieds Vej 10 - C
DK-8000 Aarhus C, Denmark. Phone: +45 8942 5034 Mobile: +45 2899 2496
Fax: +45 8612 3178 e-mail: rattan@mb.au.dk /or/ sureshrattan@hotmail.com

Academic Qualificat

B.Sc. (Hons.) Biolog	1976	Guru Nanak Dev University, Amritsar, India.
M.Sc. (Hons.)	1977	Biology; Guru Nanak Dev University, Amritsar, Ir (Gold Medal Awarded)
M. Phil.	1979	Life Sciences; Jawaharlal Nehru University, New Delhi, India.
Ph. D.	1982	Division of Genetics, National Institute for Medica Research, Mill Hill, London, UK. Thesis title: Cellular and Biochemical Aspects of Ageing of Fibroblast Cultures. *(Supervisor: Robin Holliday, FRS)*
Dr. scient. (D.Sc.)	1995	Faculty of Natural Sciences, University of Aarhus Denmark. Thesis title: Understanding Ageing: its Cellular an Molecular Determinants.

Present job : Professor of Biogerontology, Department of Molecular Biology , University of Aarhus, Denmark.

Editorial board membership

- Founding Editor-in-Chief, Biogerontology (started 2000)
- Editorial Board member, *Indian Journal of Experimental Biology*
- Editorial Board member, *Nonlinearity in Biology, Toxicology and Medicine.*
- Editorial Board member, *Journal of Anti-Aging Medicine (renamed: Rejuvenation Research, from 2004)*
- Editorial Advisory Board member, *Asian Journal of Experimental Sciences (India); (from 2005)*
- Editorial Board Member, *AGE*, journal of the American Aging Society. *(from 2005)* Editorial Board member, BioEssays (1986-90).
- Editorial Board member, Mutation Research: DNAging, (1988-1995).
- Editorial Board member, Journal of Biosciences of the Indian Nat. Sci. Academy (1991-95).
- Consultant to the monthly magazine Modern Practical Psychology (India) (from 1991).

Other rewards and recognitions

- **Danish national "Education Award 2003" by the Danish Ministry of Education, for the book E = GMC2 written for Danish Schools (see book section for details).**
- Commonwealth Fellowship from the British Council, London (1979-82).
- Member, Executive Committee, Molecular Biology Section of the EURAGE (1988-93).
- Guest Editor for the special issue of Mutation Research on Cellular Ageing (1991).

Invited speaker at various international meetings and conferences, such as International Congress of Biochemistry and Molecular Biology, International Congress of Gerontology, European Congress of Gerontology, International Congress of Biogerontology, EC's Biomed Concerted Action Programmes, International Congress of Clinical Chemistry, FEBS Conferences, and others.

CURRICULUM VITAE

Jens Peter Bonde (18.8.1952), professor, overlæge, dr med, arbejdsmedicinsk klinik, Århus Universitets Hospital.

Uddannelse og ansættelser
1979 **medicinsk kandidat** fra Aarhus Universitet
1991 samfundsmedicinsk **ph.d.-grad**
1993 **speciallæge** i samfundsmedicin/arbejdsmedicin
1993 arbejdsmedicinsk **disputats**
1993 **overlæge** ved Arbejdsmedicinsk Klinik, Århus Kommunehospital
1993 **ekstern lektor** i arbejdsmedicin ved Århus Universitet
1996 **ledende overlæge** Arbejdsmedicnsk Klinik, Århus Kommunehospital
2002 **klinisk professorat** i arbejdsmedicin ved Århus Universitet (5 årigt)

Guest Editor and Editorial Board Memberships
Scandinavian Journal of Work Environment and Health
Middle East Fertility Society Journal
Scandinavian Journal of Work Environment and Health
Reproductive Toxicology
Biomed Central: Public Health and Musculoskeletal disease

Peer reviews:
Regelmæssigt: Scandinavian Journal of Work Environment and Health, Occupational and Environmental Medicine, Human Reproduction, Reproductive Toxicology, American Journal of Industrial Medicine
International Journal of Androgy,
Sporadisk: Lancet, British Medical Journal, Fertility and Sterility, BMC-journals

CONSULTANT

Den danske arbejdsmiljøforskningsfonds videnskabelige udvalg (fra 2003, formand fra 2005)
Det svenske Arbejdslivsforsknings Prioriteringskomité på det kemiske område (2 år).
FORMAS, miljørelateret toksikologi (fra 2006)
Arbejdsskadestyrelsens erhvervssygdomsudvalg (suppleant for sundhedsstyrelsen, 1995-2005)
Retslægerådet (1996-)
Århus Universitetshospital og andre hospitaler (professor, overlæge og lektor bedømmelser)

PhD vejledning og opponentarbejde :

Hovedvejleder/vejleder ved 11 PhD forløb og 7 1-årige forskningsårsforløb (prægraduate diplom/forskningsårstudernde). Aktuelt vejleder for 5 PhD studerende. Opponent disputs 1999 og ved 14 PhD afhandlinger (1993-2005)

Organisatorisk arbejde:
Formand Reservelægerådet Hjørring sygehus 1982-85, Formand Yngre Arbejdsmedicinere 1986-88
President for internationale videnskabelige konferencer (1997 og 2001)
Formand for Dansk Epidemiologisk Selskab (2001 - 2003)
Formand Forskningsstyrelsens Arbejdsmiljøforskningsudvalg (fra 2005)
Formand Dansk Selskab for Miljø og arbejdsmedicin (fra 2005)
Chairman International Comission on Ocupational Health (ICOH), Reproductive Committee

VIDENSKABELIGT ARBEJDE

Forfatter eller medforfatter af over 200 sundhedsvidenskabelige tidsskriftartikler, lærebogskapitler, tekstbogskapitler og rapporter, heraf 152 indekseret i Entrez PubMed, heraf 19 i 2006 til dd. Omkring 35 foredrag som inviteret foredragsholder ved internationale videnskabelige konferencer. Forskningsfeltet er arbejds- og miljømedicinsk epidemiologi, primært reproduktionsepidemiologi og toksikologi men tillige psykosociale belastninger, muskuloskeletale lidelser, kræft, depression, arbejdsfastholdelse og sygefravær.

FORSKNINGSLEDELSE

Initiativtager, ansøger og koordinator af danske og internationale, sundhedsvidenskabelige forskningsprojekter, herunder et jubilæumsprojekt ved Århus Universitet (1993-1998: Fekunda) og 2 reproduktionsepidemiologiske EU RTD projekter: Asklepios 1993-1998 og Inuendo 2002-2006. Opnået forskningsbevillinger for sammenlagt omkring 40 millioner DK i perioden 1985-2005.

Biographic sketch

POUL HENNING JENSEN

Present position: Head, professor, Institute of Medical Biochemistry, University of Aarhus, DK-8000 Aarhus C, Denmark.

Birth date: May 30, 1959

SCIENTIFIC CAREER:

1986 Gold medal for a thesis in general physiology, University of Aarhus 1986.

1989 M.D., University of Aarhus

1994 Completed medical internship, Aarhus University Hospital

1997 Doctor of Medical Science, University of Aarhus

1997-1998 Visiting scientist, European Molecular Biology Laboratory, Heidelberg, Germany

1998 Associate professor, Institute of Medical Biochemistry, University of Aarhus

2001- Head, Institute of Medical Biochemistry, University of Aarhus,

2004 - Professor, Institute of Medical Biochemistry, University of Aarhus

2005 Partner in the Nordic Center of Excellence in Neurodegeneration (2005-10)

2006 Partner in the Danish innovation consortium Cure-ND (2006-9)

Publications: Published 57 original papers.

Research: 1994 established the Molecular Neurodegenerative group at the Institute of Medical Biochemistry that focuses on Parkinson's disease, dementia and related diseases characterised by cytoplasmic protein misfolding. The group has a strong record in molecular biology, protein chemistry, cell biology, neurochemistry and is currently making transgenic mice models. This is used for investigating signalling pathways used by key molecular players in neurodegenerative processes.. The group is engaged in extensive collaborations with numerous international groups of complementary scientific skills and is currently part of the Nordic Center of Excellence in neurodegenerative diseases and member of the innovation consortium Cure-ND. The group currently

comprise 1 professor, 1 assistant professor, 1 post doc, 3 ph.d. students, 2 graduate students, 2 technicians.

Curriculum Vitae and Publications for Lars Bolund

Born 20. March 1944 in Stockholm, Sweden. Danish citizen since 1983. Married to Dorte Bolund. Three children and one stepchild.

Bachelor of Medicine (Med.Kand.) at Karolinska Institutet, Stockholm 1965. DrMedSci (Med.Dr.) and Docent at Karolinska Institutet, Stockholm 1971. Graduation in Medicine (Läkarexamen) at Karolinska Institutet, Stockholm 1976.

1964-71: Amanuensis/Research assistant, Institute for Medical Cell Research and Genetics, Karolinska Institutet, Stockholm. *1971-72*: Post-doctoral scientist at the Department of Molecular Biology, Chester Beatty Cancer Research Institute, London, on a scholarship from the British Royal Society. *1972-76:* Employed on a research grant from the Swedish Cancer Society working at Karolinska Institutet, Chester Beatty Cancer Research Institute, and Portsmouth Polytechnic. *1976-87:* Professor of Clinical Genetics, Department of Human Genetics, University of Aarhus. *1987-88:* Research professor of the Aarhus University Research Fund. *1988-92:* Professor of Clinical Genetics, Department of Human Genetics, University of Aarhus. *1992-93:* Visiting professor at the Division of Molecular Cytometry, UCSF, San Francisco. *1993-2001:* Professor of Clinical Genetics, Department of Human Genetics, University of Aarhus. *1998-*: Senior advisor and adjunct professor of the Beijing Genomics Institute. *2001-02:* Visiting Scholar at the Genome Center, University of Washington, Seattle. *2002-*: Professor of Clinical Genetics, Department of Human Genetics, University of Aarhus. *2003-*: Board member of James D. Watson Institute of Genome Science and Beijing/Hangzhou Genomics Institutes.

Member of many national and international boards or councils e.g. the Danish Medical Research Council (1983-1987), Danish Board of Technology Assessment (1986-1988), Danish Council of Ethics (1988-1991), Danish Cancer Society (1992-2001), NOVO´s Medical and Natural Science Committee (1993-2002), several scientific and ethical EU committees.

Knight of the Royal Order of Dannebrog, 1985.
Knight of the 1st class of the Royal Order of Dannebrog, 1998.

Scientific Honours:
Odd Fellow´s Research Prize (together with professor A.J. Therkelsen), 1979.
"The Foundation of 1870" Research Prize, 1987.
Consul-general Ernst Carlsen´s Honorary Prize, 1991.
August Krogh Prize (Danish Medical Society and NOVO´s Fund), 1996.
Honorary Professor of the Chinese Academy of Sciences, 1998.
Honorary Professor of the Chinese Academy of Medical Sciences, 2003.

Publications:

Some 250 scientific articles (database submissions, patents and scientific abstracts excluded) in the fields of genome/gene structure and function in cell biology and clinical genetics, molecular cell pathology of complex diseases, and somatic gene therapy.

Curriculum vitae JAN STAGSTED Born July 28 1961

Danish Institute of Agricultural Sciences, Department of Food Science, Research Center Foulum, Postbox 50,
DK-8830 Tjele, 8999 1186, Fax: 8999 1564, email: jan.stagsted@agrsci.dk

Education Cand.scient. Biochemistry, University of Copenhagen 1987
Doktor med., Aarhus University, 1998

Employment

1987-1988 Postdoctoral fellow, Department of Genetics, University of California, Berkeley.
1988-1994 Research scientist, Receptron Inc., Concord, California
1994-1999 Forskningsadjunkt/lektor, Department of Medical Biochemistry, Aarhus University
1999-2000 Researcher, Danish Institute of Agricultural Science, Research Center Foulum
2000- Senior Researcher, Danish Institute of Agricultural Science, Research Center Foulum

Selected publications

Hansen T, Stagsted J, Pedersen L, Roth RA, Goldstein A, Olsson L. Inhibition of insulin receptor phosphorylation by peptides derived
from major histocompatibility complex class I antigens. *Proc Natl Acad Sci U S A. 1989 May;86(9):3123-6.*
Stagsted, J., Reaven, G.M., Hansen, T., Goldstein, A., and Olsson, L. Regulation of Insulin Receptor Functions by a Peptide Derived from
a Major Histocompatibility Complex Class I Antigen. Cell, 1990, 62, 297-307.
Stagsted, J., Baase, W.A., Goldstein, A., and Olsson, L. A Preformed, Ordered Structure of a 25-residue Peptide Derived from a Major
Histocompatibility Complex Class I Antigen is Required to Affect Insulin Receptor Function. J. Biol. Chem., 1991, 266, 12844-
7.
Stagsted, J., Ziebe, S., Satoh, S., Holman, G.D., Cushman, S.W., and Olsson, L. Insulinomimetic Effect on Glucose Transport by
Epidermal Growth Factor When Combined with a Major Histocompatibility Class I-derived Peptide. J. Biol. Chem., 1993, 268,
1770-74.
Stagsted, J., Mapelli, C., Meyers, C., Matthews, B.W., Anfinsen, C.B., Goldstein, A., and Olsson, L. Amino acid residues essential for
biological activity of a peptide derived from a major histocompatibility complex class I antigen. Proc. Natl. Acad. Sci. USA, 1993, 90, 7686-90.
Stagsted, J., Olsson, L., Holman, G.D., Cushman, S.W., and Satoh, S. Inhibition of Internalization of Glucose Transporters and IGF-II
Receptors. Mechanism of Action of MHC Class I-Derived Peptides Which Augment the Insulin Response in Rat Adipose Cells.
J. Biol. Chem., 1993, 268, 22809-13.
Stagsted, J., Hansen, T., Goldstein, A., and Olsson, L. Correlation between Insulin Receptor Occupancy and Tyrosine Kinase Activity at
Low Insulin Concentrations and Effect of MHC Class I-derived Peptide. J. Pharmacol. Exp. Ther., 1993, 267, 997-1001.
Olsson, L., Goldstein, A., and Stagsted, J. Regulation of receptor internalization by the major histocompatibility complex class I molecule.
Proc. Natl. Acad. Sci. USA, 1994, 91, 9086-90.
Weaver, L., Stagsted, J., Behnke, O., Matthews, B. W., and Olsson, L. â-Sheet model for the ordered filamentous structure formed by a
peptide that enhances the action of insulin. J. Struct. Biol., 1996, 117, 165-72.
Stagsted, J. Journey beyond Immunology: Regulation of receptor internalization by major histocompatibility complex class I (MHC-I) and
effect of peptides derived from MHC-I. APMIS suppl. 1998, 85, 1-40.
O'Sullivan, M.G., Byrne, D.V., Stagsted, J., Andersen, H.J. & Martens, M., 2001. Sensory colour assessment of fresh meat from pigs
supplemented with iron and vitamin E. Meat Science 60 (2002), 253-265
Stagsted, J. & Young, J.F., 2002. Large Differences in Erythrocyte Stability between Species Reflect Different Antioxidative Defence
Mechanisms. Free Radical Research 36, 779-789.
Young, J.F., Steffensen, C.L., Nielsen, J.H., Jensen, S.K. & Stagsted, J., 2002. Chicken Model for Studying Dietary Antioxidants Reveals
that Apple (Cox's Orange)/Broccoli (Brassica oleracea L. var. italica) Stabilises Erythrocytes and Reduces Oxidation of Insoluble

Muscle Proteins and Lipids in cooked Liver. Journal of Agricultural and Food Chemistry, 50, 5058-5062
Young, J.F. & Stagsted, J., 2002. Effect of quercetin, catechin and BHT on the stability of erythrocytes. Free Radical Research, 36, 88-89.
Young, J.F., Stagsted, J., Jensen, S.K., Karlsson, A.H. & Henckel, P., 2003. Ascorbic acid, alpha-tocopherol and oregano supplements
reduce stress-induced deterioration of chicken meat quality. Poultry Science 82, 1343-1351
Young, J.F., Rosenvold, K., Stagsted, J., Steffensen, C.L., Nielsen, J.H., Andersen, H.J. 2003. The significance of pre-slaughter stress on
oxidative status and stability of porcine muscle and meat containing different PUFA levels. Journal of Agricultural and Food
Chemistry 51, 6877-6881
Wiking, L., J. Stagsted, L. Björck & J.H. Nielsen. (2004) Milk fat globule size is affected by fat production in dairy cows. International
Dairy Journal 14, 909-13
Stagsted, J., Bendixen, E. & Andersen, H.J. (2004). Identification of specific, oxidatively modified proteins in chicken muscle using a
combined immunological and proteomic approach. J. Agric. Food Sci. 52, 3967-74
Dragsted, L.O., Pedersen, A., Hermetter, A., Basu, S., Hansen, M., Ravn-Haren, G., Kall, M., Breinholt, V., Castenmiller, J., Stagsted,
J., Jakobsen, J., Skibsted, L.H., Rasmussen, S.E., Loft, S., and the late Sandström, B. (2004) The 6-a-day study: Effects of fruits and vegetables on markers of oxidative stress and defense in healthy non-smokers. Am. J. Clin. Nutr. 79, 1060-72
Bertram HC, Stagsted J, Young JF, Andersen HJ (2004) Elucidation of membrane destabilization in post-mortem muscles using an
extracellular paramagnetic agent (Gd-DTPA): an NMR study J Agric Food Chem. 2004 Oct 6;52(20):6320-5
Young, J.F., Rosenvold, K., Stagsted, J., Nielsen, J.H. & Andersen, H.J. 2005. Significance of vitamin E supplementation, dietary
content of polyunsaturated fatty acids and pre-slaughter stress on oxidative status in pig as reflected in cell integrity and anti-oxidative enzyme activities in porcine muscle. Journal of Agricultural and Food Chemistry 53, 745-749.
Stagsted, J., Hoac, T., Åkesson, B. & Nielsen, J.H., 2005. Dietary supplementation with organic selenium (Sel-Plex) alters oxidation in
raw and pasteurised milk. In "Nutritional Biotechnology in the Feed and Food Industries" (Lyons, T.P. and Jacques, K.A., Eds.), Nottingham University Press, Nottingham, UK. ISBN 1-904761-12-7.
Stagsted, J. 2006. Absence of both glutathione peroxidase ativity and glutathione in bovine milk. International Dairy Journal 16, 662-8

Curriculum Vitae
Karin Hjelholt Jensen

Personlige data:

1956 Født den 18. april.

Uddannelse:

1985 Cand. Scient. ved Københavns Universitet, hovedfag i biologi/zoologi, bifag i legemsøvelser og speciale i etologi (Pattegrises adfærd under delvis fravænning).

1995 Ph.D. ved Zoologisk Institut, Afd. for Populationsbiologi, Københavns Universitet med afhandlingen: Adfærdsmæssige og fysiologiske stressreaktioner hos svin.

Ansættelser:

1986 - 1996 Vid. ass. ved Statens Husdyrbrugsforsøg, Afd. for forsøg med svin og heste.

1996 - 2000 Seniorforsker ved Statens Husdyrbrugsforsøg / Danmarks JordbrugsForskning, Afd. for Sundhed og Velfærd.

2000 - 2004 Forskningsleder ved Danmarks JordbrugsForskning, Afd. for Sundhed og Velfærd, med ansvar for området, produktionssygdomme og immunologi, enmavede. Med fokus på konstitution, medfødte immunologiske mekanismer og samspillet til stressfysiologiske reaktionsmønstre bidrager forskningsområdet til forebyggelse af de mest betydende sygdomme, skader og lidelser i fjerkræ-, pelsdyr- og svineproduktionen gennem udvikling af sundhedsfremmende principper. Desuden medvirkes til opbygning af viden omkring dyreforsøgskundskab samt udvikling af forbedrede dyremodeller for smerte og stressrelaterede humane sygdomskomplekser.

2005- Seniorforsker ved Danmarks JordbrugsForskning, Afdelingen for Husdyrsundhed, Velfærd og Ernæring.

Forskningsområde:

Forskningen omfatter husdyrs tilpasningsevne til produktionsforhold med fokus på sammenhængen mellem stressbiologiske reaktionsmønstre, smittespredning, immunkompetence og sygdomsresistens. Der fokuseres på årsagsrelationer knyttet til effekter på mave-tarmsundhed og immunkompetence. I forbindelse hermed lægges vægt på forskning i grundlæggende stressbiologiske reaktioner hos svin, herunder endokrine reaktioner og kommunikationen med immunforsvaret. Desuden medvirkes til udvikling af dyremodeller for humane sygdomskomplekser. Kontaktperson til svineerhvervet.

Udvalgte publikationer:

Jensen K.H., Hansen S.W., Pedersen L.J., 1996: The effect of long term stress on the hypothalamo-pituitary-adrenal-axis and the role of the stressor. Acta Agric. Scand. Sect. A, Animal Sci. Suppl. 27: 40-45.

Damm, B.I., Pedersen, L.J., Ladewig, J. and Jensen, K.H. 2000. A simplified technique for non-surgical cannulation of the vena Cava cranialis in sows and an evalustion of the method. Laboratory Animal 34: 182-188.

Pedersen, L.J., Jensen K.H., Jørgensen E., 1996: Pre- and postpubertal LH and estradiol pattern in gilts subjected to intermittent inescapable electroshock. Acta Vet. Scand. 37: 153-161.

Pedersen, L.J., Jensen K.H., Giersing Hagelsø A.M., 1997: Oestrus and mating behaviour in gilts during boar-induced puberty in relation to stress and housing. Appl. Anim. Behav. Sci., 52: 13-24.

Thodberg K., Jensen K.H., Herskin M.S., 1999. A general reaction pattern across situations in pre-pubertal gilts. Appl. Anim. Behav. Sci. 63(2): 103-119.

Herskin M.S., Jensen K.H. 2000. Effects of different degrees of social isolation on the behaviour of weaned piglets kept for experimental purposes. Animal Welfare 9(3): 237-249.

Herskin M.S., Jensen K.H. 2002. Effects of open field testing and associated handling vs. handling alone on the adrenocortical reactivity of piglets around weaning. Animal Science 74: 485-491.

Kjær, J.B., Hjarvard, B.M., Jensen, K.H., Hansen-Møller, J., Naesby Larsen, O., 2004. Effects of haloperidol, a dopamine D2 receptor antagonist, on feather pecking behaviour in laying hens. Appl. Anim. Behav. Sci., 86: 77-91.

Lind, N.M., Arnfred, S.M., Hemmingsen R.P, Hansen, A.K., Jensen, K.H., 2005. Open Field Behaviour and Reaction to Novelty in Göttingen Minipigs: Effects of Amphetamine and Haloperidol Scand J Lab Anim Sci, 32(2): 103-112.

Dalgaard T.S., Vitved L., Skjødt K., Thomsen B., Labouriau R., Jensen K.H., Juul-Madsen H.R. 2005. Molecular characterisation of MHC class I (B_F) mRNA variants from chickens differing in resistance to Marek's disease. Accepted for publication in Scandinavian Journal of Immunology.

Carstensen, L., Ersbøll, A.K., Jensen, K.H. & Nielsen, J.P., 2005. Escherichia coli post-weaning diarrhoea occurrence in piglets with monitored exposure to creep feed. Vet. Microbiol. 110, 113-123.

Damgaard B.M., M. Studnitz M., Nielsen J., Moutsen V.A., Jørgensen E., Jensen K.H., 2006. The effects of zonation of the pen and grouping in intact litters on use of pen, immune competence and health of pigs. Livestock Science 104: 203-216.

Juul-Madsen, H.; Dalgaard, T.S.; Røntved, C.M.; Jensen, K.H.; Bumstead, N., 2006. Immune Response to a Killed Infectious Bursal Disease Virus (IBDV) Vaccine in Inbred Chicken Lines with Different MHC Haplotypes. Poultry Science 85:986-998.

Curriculum Vitae November 2006

Birte Lindstrøm Nielsen

Date of birth: 14th March 1965 **Nationality**: Danish
Home address: Søvangen 27, Ørum, DK-8830 Tjele, DENMARK

Work address: **Danish Institute of Agricultural Sciences, Dept. of Animal Health, Welfare and Nutrition, Research Centre Foulum, PO Box 50, DK-8830 Tjele, DENMARK.**

Telephone**: +45 8999 1373 (direct dial); +45 8999 1372 (secretary); +45 8999 1900 (switchboard).**

Fax: + 45 8999 1500; **E-mail:** birte.nielsen@agrsci.dk

ACADEMIC DEGREES:

B.Sc. in Agriculture (1988) from The Royal Veterinary and Agricultural University, Copenhagen, Denmark, specialising in animal husbandry and production.
M.Sc. (cand. agro.) in Agriculture (1990) from The Royal Veterinary and Agricultural University, Copenhagen, Denmark, specialising in the ethology of farm animals.

Ph.D. in Ethology (1995) entitled *"Feeding behaviour of growing pigs: Effects of the social and physical environment"* at The University of Edinburgh, United Kingdom.

EMPLOYMENT

2005-	Head of Research Unit for Behaviour and Stress Biology, Dept. of Animal Health, Welfare and Nutrition, Danish Institute of Agricultural Science (DIAS).
2004	Six months at the French-speaking Université du Québec á Montréal (UQAM) in Canada working on behaviour and welfare consequences of genetic selection for fast, lean efficient growth in meat producing animals.
1999-2004	Senior Scientist at DIAS, Dept. of Animal Health and Welfare, responsible for research into behavioural and welfare aspects of meat producing farm animals, in particular pigs and poultry.
1997-99	Project Scientist as above.
1995-97	Post doc at the Scottish Agricultural College on a government funded (SOAEFD) collaboration between five Scottish institutes entitled Metabolic Stress in the High Yielding Dairy Cow.
1991-95	Ph.D. student at The University of Edinburgh investigating feeding behaviour in growing pigs related to the genetic selection for production traits within a group-housed environment.
1988-91	Assistant Scientific Officer at the Scottish Agricultural College (SAC) and the Royal (Dick) School of Veterinary Studies (Edinburgh) on projects relating to i) stereotypic behaviour in tethered sows, ii) maternal behaviour and lamb mortality in Scottish Blackface sheep, and iii) the behavioural, endocrine and immune response of sheep to psychological stressors.

RESEARCH PROFILE

During the last 18 years I have worked on research in basal and applied ethology. I have in-depth experience in experimental behaviour science on growing pigs, dairy cows and broiler chickens, and have been involved in work on horses and ostrich. I have authored and co-authored a number of seminal papers on feeding behaviour, and have extensive knowledge of and skill in the handling of large and complex data sets.

In addition, I work on behavioural and welfare aspects of meat producing farm animals, in particular pigs and poultry. Currently, I am project leader on two large multidisciplinary research projects entitled '*Robust and harmonic broiler growth*' (Budget: 10 mill. kr) and "*Physical, thermal, and biological requirements to floor quality for the health and behaviour of pigs"* (Budget: 16 mill. kr).

ADDITIONAL RESPONSIBILITIES OR MERITS:

- Chairman of the The Special Council concerning Animal Welfare ("Dyreværnsrådet")
- Member of the National Committee for Agricultural Animals under the Danish Ministry of Justice
- Currently co-supervise three Ph.D. students working on fear in horses, activity and feather pecking in chickens, and analysi of movement in pigs, respectively.
- One of two Danish members of the steering committee of the European COST Action 846 'Measuring and Monitoring Farm Animal Welfare'.

PUBLICATIONS:

Currently have 26 international refereed publications, as well as 67 other publications.

CURRICULUM VITAE Latest update: 18 June 2008

Martin Holmstrup (born 1961)

Education and degrees
1989 MSc in Biology (University of Aarhus, Earthworm ecology)
1995 PhD in Biology (University of Aarhus, earthworm ecophysiology)
2003 DSc in Biology (University of Aarhus, soil invertebrate ecophysiology)

Employment
1989-1990 Teacher at Marselisborg Gymnasium
1990-1991 Guest researcher at University of Oslo, Department of Zoology (Prof. Lauritz Sømme)
1991-1993 PhD student at University of Aarhus, Department of Zoology
1993-1996 Scientist, National Environmental Research Institute (NERI), Dept. of Terrestrial Ecology
1996-2003 Senior Scientist, NERI, Dept. of Terrestrial Ecology
2000 External lecturer, Dept. of Zoology, University of Aarhus (Ecotoxicology)
2003- Professor, NERI, Dept. of Terrestrial Ecology

KEY RESEARCH INTERESTS AND DISCOVERIES
Key Research Interests

My research interests include ecophysiology and ecotoxicology of soil invertebrates, physiological and biochemical adaptations to drought and cold stress, interactions between pollution and climatic stresses. The work ranges from laboratory studies to field manipulation experiments assessing effects of climate change and pollution on soil organisms.

Three key publications (out of >65 peer reviewed papers)
Holmstrup M, Westh P (1994) Dehydration of earthworm cocoons exposed to cold: a novel cold hardiness mechanism. *Journal of Comparative Physiology B* 164:312-315

Bayley M, Holmstrup M (1999) Water vapor absorption in arthropods by accumulation of myoinositol and glucose. *Science* 285:1909-1911

Holmstrup M, Bayley M, Ramløv H (2002) Supercool or dehydrate? An experimental analysis of overwintering strategies in small permeable arctic invertebrates. *PNAS* 99:5716-5720

Discoveries
- Description of a novel cold hardiness mechanism, *cryoprotective dehydration*, operating in permeable invertebrates, especially nematodes, enchytraeids, earthworms, and some arthropods such as Collembola.

- The discovery of passive water vapour absorption in permeable Collembola enabling them to remain active even in dry soil at the permanent wilting percentage of plants.

- Demonstration of synergistic interactions between climatic stress (frost and drought) and environmental pollution in soil invertebrates.