BENZON SYMPOSIUM
No. 62
GENOME INSTABILITY AND NEURODEGENERATION

AUGUST 22-25, 2016
COPENHAGEN, DENMARK

Organizing committee:
Lene Juel Rasmussen (Copenhagen), Ian D. Hickson (Copenhagen), Niels Borregaard (Copenhagen), and Finn Cilius Nielsen (Copenhagen)
MONDAY, AUGUST 22, 2016

09:00-09:05 Welcome

Opening Keynote Lecture
Chair Lene Juel Rasmussen

09:05-09:55 Matthias Mann: Mass spectrometry-based proteomics in cell biology and biomedicine
09:55-10:05 Discussion

Session I Epidemiology of aging and neurodegeneration
Chair Lene Juel Rasmussen
10:05-10:35 Nir Barzilai: Targeting the Biology of Aging to Prevent Neurodegenerative diseases
10:35-10:45 Discussion

10:45-11:15 Coffee Break

11:15-11:45 Kaare Christensen: Aging and Neurodegeneration in the Oldest-Old
11:45-11:55 Discussion

11:55-12:05 Rudi Westendorp: Flow in Old Age (Poster number I-1)
12:05-12:10 Discussion

12:10-13:10 LUNCH

Session II The basic biology of DNA damage and repair in brain I
Chair Björn Schumacher
13:10-13:40 Judith Campisi: Cellular senescence links the DNA damage response to tissue degeneration
13:40-13:50 Discussion

13:50-14:20 Yosef Shiloh: Linking ATM Functions to the Cerebellar Degeneration in Ataxia-Telangiectasia
14:20-14:30 Discussion

14:30-14:40 Victoria Alexandra Bjerregaard: Folic Acid Deficiency Induces Anaphase DNA Bridges At The Fragile X Locus (Poster number I-2)
14:40-14:45 Discussion

14:45-15:15 Coffee Break

15:15-15:45 Lene Juel Rasmussen: Mitochondrial function regulates nucleotide metabolism and affects genomic stability: mechanisms and biomarker for cognitive function
15:45-15:55 Discussion

15:55-16:05 Victoria Meltser: Specific accumulation of p73 protein in irradiation-induced micronuclei (Poster number I-3)
16:05-16:10 Discussion

16:10-18:25 Authors present posters Nos. I-1 to I-10
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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| 19:30-21:30| **Reception at Café Mazzolis in Tivoli (old amusement park)**<br>(walking time from hotel to Tivoli is about 15 min.) |**TUESDAY, AUGUST 23 2016**

**Session III**

Chair: Jan Vijg

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>09:00-09:30</td>
<td>Ian D. Hickson: Chromosome instability driven by fragile sites in the human genome</td>
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<td>09:30-09:40</td>
<td>Discussion</td>
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<td>09:40-10:10</td>
<td>Keith Caldecott: DNA Single-Strand Break Repair and Human Neurological Disease</td>
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<td>10:10-10:20</td>
<td>Discussion</td>
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<td>10:20-10:50</td>
<td><strong>Coffee Break</strong></td>
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<tr>
<td>10:50-11:20</td>
<td>Björn Schumacher: DNA damage responses in ageing and disease: an organismal perspective</td>
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<td>11:20-11:30</td>
<td>Discussion</td>
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<tr>
<td>11:30-11:40</td>
<td>Sherif El-Khamisy: Defective chromosomal break repair in spinal muscular atrophy</td>
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<td>11:40-11:45</td>
<td>Discussion</td>
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<td>11:45-11:55</td>
<td>Daryl Shanley: Computational modelling the cellular response to DNA damage: short term dynamics and long term consequences (Poster number II-2)</td>
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<td>11:55-12:00</td>
<td>Discussion</td>
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<td>12:00-13:00</td>
<td><strong>LUNCH</strong></td>
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**Session IV**

Chair: Vilhelm Bohr

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>13:00-13:30</td>
<td>Karl Herrup: ATM and ATR in neurons -- functions beyond the DNA damage response</td>
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<td>13:30-13:40</td>
<td>Discussion</td>
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<td>13:40-14:10</td>
<td>Jan Vijg: Genome instability: a conserved mechanism of aging?</td>
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<td>14:10-14:20</td>
<td>Discussion</td>
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<td>14:20-14:30</td>
<td>Thomas Kirkwood: Aging, damage and repair: how complicated can it be? (Poster number II-3)</td>
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<td>14:30-14:35</td>
<td>Discussion</td>
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<td>14:35-15:00</td>
<td><strong>Coffee Break</strong></td>
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<td>15:00-15:30</td>
<td>Karl Deisseroth: Integrated brainwide structural and functional analysis</td>
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<td>15:30-15:40</td>
<td>Discussion</td>
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<td>15:40-15:50</td>
<td>Tinna Stevnsner: Regulation of base excision repair in the aging human brain (Poster number II-4)</td>
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<td>15:50-15:55</td>
<td>Discussion</td>
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<td>15:55-16:05</td>
<td>Claus Desler: Increased deoxythymidine triphosphate levels is a feature of relative cognitive decline (Poster number II-5)</td>
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<td>16:05-16:10</td>
<td>Discussion</td>
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<td>16:10-18:00</td>
<td>Authors present posters Nos. II-1 to II-16</td>
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WEDNESDAY, AUGUST 24, 2016

Session V  Homeostasis in brain II  
Chair: Jan Hoeijmakers

09:00-09:30  Vilhelm Bohr: Nuclear to Mitochondrial DNA damage signaling in Neurodegeneration
09:30-09:40  Discussion
09:40-10:10  Nils-Göran Larsson: The role of Mitochondria in Parkinson’s disease
10:10-10:20  Discussion
10:20-10:50  Coffee Break

Session VI  The pathogenesis of neurodegenerative disorders I  
Chair: Nathaniel Heintz

10:50-11:20  Tony Wyss-Corray: Systemic regulation of brain aging and plasticity
11:20-11:30  Discussion
11:30-11:40  Kanagaraj Radhakrishnan: Resolving RNA-DNA Damage-Induced Genomic Instability: Where There Is SETX, There Is a Way  
(Poster number III-1)
11:40-11:45  Discussion
11:45-11:55  Hana Hanzlikova: XRCC1 Mutations in Human Neurological Disease  
(Poster number III-2)
11:55-12:00  Discussion
12:00-13:00  LUNCH

Chair: Karl Herrup

13:00-13:30  Hongjun Song: Dynamic DNA demethylation via base-excision repair regulates neuronal flexibility
13:30-13:40  Discussion
13:40-14:10  Andre Nussenzweig: The role of DNA breaks in neuronal gene expression determined by END-seq
14:10-14:20  Discussion
14:20-14:30  Rami Aqeilan: Role of tumour suppressor WWOX, gene product of a common fragile site, in brain development and neurodegeneration  
(Poster number III-3)
14:30-14:35  Discussion
14:35-15:00  Coffee Break
15:00-15:30  Cynthia McMurray: Age–dependent expansion in human Huntington Disease: from genetics to metabolism
15:30-15:40  Discussion
15:40-15:50  Morten Scheibye-Knudsen: Neurodegeneration in Accelerated Aging  
(Poster number III-4)
15:50-15:55  Discussion
15:55-16:05  Ray Truant: Huntingtin Functions in a Response to Oxidative Adenosine DNA Damage via a novel signaling pathway that co-regulates huntingting and P53 activity in ROS DNA-damaged cells  
(Poster number III-5)
15:05-16:10 Discussion

16:10-17:40 Authors present posters Nos III-1 to III-19

19:30-23:30 **Banquet at The University of Copenhagen**
(walk 19:25; time from hotel to University is about 3 min.)
### Session VII: The Pathogenesis of Neurodegenerative Disorders II

**Chair:** Cynthia McMurray

**09:00-09:30**

**Nathaniel Heintz:** Exploring the Molecular Landscapes of CNS Cell Types: 5hmC, MeCP2 and Stabilization of Neuronal Phenotypes

**09:30-09:40**

Discussion

**09:40-10:10**

**Martin Lavin:** ATM-dependent cytoplasmic signaling

**10:10-10:20**

Discussion

**10:20-10:50**

Coffee Break

**10:50-11:00**

**Tone Tønjum:** On the Brain-Gut axis: Differential expression of DNA repair pathways in human brain and mucosal gut tissue (*Poster number III-6*)

**11:05-11:05**

Discussion

**11:05-11:15**

**Linda H. Bergersen:** A novel mechanism for exercise-induced angiogenesis in the brain (*Poster number III-7*)

**11:15-11:20**

Discussion

**11:20-11:50**

**Maiken Nedergaard:** The glymphatic system and its importance in amyloid clearance

**11:50-12:00**

Discussion

**12:00-13:00**

**LUNCH**

**Chair:** Ian D. Hickson

**13:00-13:30**

**Zhao-Qi Wang:** The function of the MRN complex in neuropathy

**13:30-13:40**

Discussion

**13:40-14:10**

**Peter McKinnon:** Maintaining genome stability in the nervous system

**14:10-14:20**

Discussion

**14:20-14:50**

Coffee Break

**14:50-15:00**

**Nabieh Ayoub:** NELF-E Facilitates Transcription Silencing at DNA Double-Strand Breaks and Promotes DNA Repair (*Poster number III-8*)

**15:00-15:05**

Discussion

**15:05-15:15**

**Pier Giorgio Mastroberardino:** Inefficient DNA repair is an aging-related modifier of Parkinson’s disease (*Poster number III-9*)

**15:15-15:20**

Discussion

**15:20-16:20**

**Jan Hoeijmakers:** The impact of DNA damage on neurodegeneration and the potential of nutritional interventions

**16:20-16:25**

Discussion

**16:25-16:30**

Concluding Remarks