

**XERODERMA PIGMENTOSUM AND OTHER DISEASES OF
HUMAN PREMATURE AGING AND DNA REPAIR:
MOLECULES TO PATIENTS**

September 21-24, 2010,

Westfields Marriott Dulles Conference Center, Chantilly, VA

Organizers: Vilhelm Bohr, Kenneth Kraemer, and Laura Niedernhofer

Sponsored by the

National Institutes of Health Office of Rare Diseases,

Center for Cancer Research, National Cancer Institute,

National Institute on Aging, Laboratory of Molecular Gerontology,

University of Pittsburgh, The Ellison Medical Foundation,

Xeroderma Pigmentosum Family Support Group

NOTE: All speakers are to allot 5 minutes at the end of assigned time for Q&A

TUESDAY, SEPTEMBER 21

- 5:00 – 5:50 PM Registration
5:50 – 7:00 PM **DINNER**
7:15 - 7:30 PM Welcome, meeting logistics and objectives
 Vilhelm Bohr, Kenneth Kraemer, Laura Niedernhofer
7:30 - 8:10 PM Patient support groups
 XP Family Support Group – **Michele Milota**
 XP Support Group UK, Owl Patrol – **Sandra Webb**
 Share and Care CS Support Group– **Jackie Clark**
- 8:10 – 9:30 SESSION 1 – BEDSIDE AND BENCH
 CHAIR: V. Bohr
- 8:10 - 8:30 PM **Brian Brooks:** Ocular manifestations of DNA repair disorders
8:30 - 8:50 PM **Miria Stefanini:** Functional characterization of temperature-
 sensitive XPD mutations in TTD patients showing fever-dependent
 worsening of clinical features
8:50 - 9:10 PM **Sam Wilson:** Nucleotide structure and DNA repair-mediated
 mutagenicity and cell killing.
9:10 - 9:30 PM **Qingyi Wei:** The effects of genetic variants of the NER genes on
 risk of melanoma
- 9:30 PM - POSTER SOCIAL

Revised 9-15-2010

WEDNESDAY, SEPTEMBER 22

- 7:00 - 8:00 AM BREAKFAST
- 8:00 - 10:00 AM SESSION 2 CLINICAL DISEASE
CHAIRS – Ken Kraemer and Margaret Tucker
- 8:00 - 8:30 AM **Ken Kraemer:** Wide spectrum of XP genotypes and phenotypes
& **Porcia Bradford:** Cancer and neurologic degeneration in XP:
39 yr follow-up characterizes the role of DNA repair
- 8:30 – 9:00 AM **John DiGiovanna:** TTD diagnosis and spectrum of clinical
phenotypes
& **Melissa Merideth:** Pregnancy abnormalities in mothers of TTD
patients
- 9:00 - 9:20 AM **Edward Neilan:** Diagnosis of CS
- 9:20 - 9:40 AM **Koos Jaspers:** Diagnosis of Inherited Nucleotide Excision Repair
Deficiency
- 9:40 - 10:00 AM **Jill Fuss:** From clinical to crystal: structural biochemistry of XPD
- 10:00-10:30 AM COFFEE BREAK
- 10:30- 11:50 AM SESSION 3 NEUROLOGICAL DISEASE
CHAIR- Laura Niedernhofer
- 10:30 - 11:00 AM **Tyler Pierson & Nicholas Patronas:** Neurological and neuro-
imaging findings in XP and TTD
- 11:00 - 11:30 AM **Jinping Lai & Yen-Chun Liu:** Autopsy of an XPA and an XPD
patient with emphasis in neuropathology
- 11:30 - 11:50 AM **Karen Weidenheim:** Mechanisms of disease in Cockayne
syndrome: lessons from pathology
- 11.50 - 1:00 PM LUNCH
- 1:00 - 2:05 PM SESSION 4 CLINICAL AND LABORATORY DIAGNOSIS
CHAIR – Alan Lehmann and Ed Neilan
- 1:00 - 1:30 PM **Shinichi Moriwaki:** Diagnosis of XP, CS and TTD in Japan
& **Chikako Nishigori:** Three XP variant patients in Japan
- 1:30 - 1:45 PM **Thomas Hornyak:** Use of dermatoscopy in diagnosis of XP
- 1:45 - 2:15 PM **Alan Lehmann:** The XP population in the UK
& **Robert Sarkany:** New multi-disciplinary clinic for diagnosis and
treatment of XP in the UK
- 2:15- 2:45 PM PANEL DISCUSSION 1: DIAGNOSIS, CARE AND TREATMENT
CHAIRS: Thomas Ruenger and Margaret Tucker
Participants: Lehmann, Jaspers, Neilan, DiGiovanna, Moriwaki,
Emmert, Nishigori, Jaspers, Kraemer, Sergio Rosenzweig, Pierson,
others

2:45- 3:20 PM PRESENTATION OF PATIENTS:
Ken Kraemer, John DiGiovanna, Ed Neilan,
XP adult, TTD youth 20 y/o, CS child

3.20 - 4:00 PM GROUP PHOTO (with patients) AND COFFEE BREAK

4 :00 – 5 :20 PM SESSION 5 THERAPY, DNA REPAIR AND AGING
CHAIRS: John DiGiovanna and Steffen Emmert

4:00 - 4:20 PM **Steffen Emmert:** Inhibition of DNA repair by
immunosuppressive drugs

4:20 - 4:40 PM **Paul Robbins:** Regulation of age-related degeneration by
IKK/NF-kB

4:40 - 5:00 PM **Laura Niedernhofer:** Radical scavengers to treat neurodegen-
eration

5:00 - 5:20 PM **Ingrid van der Pluijm:** DNAge- translation of aging research into
medicine for premature aging diseases

5:20- 5:50 PM FREE TIME

5:50 -7:00 PM DINNER

7:00- 7:40 PM SESSION 6 NEURODEGENERATION MODELS
CHAIRS: Cynthia McMurray and James Cleaver

7:00 – 7:20 PM **James Cleaver:** DNA repair and oligodendrocyte
differentiation in a mouse model of CS

7:20 – 7:40 PM **Rebecca Lapos:** Neuronal death and neurogenesis after UV
damage

7:40- 8.10 PM COFFEE BREAK

8:10-8.40 PM HIDDEN LIGHTS – VIDEO ABOUT XP IN GUATEMALA
Michele Milota, XP FAMILY SUPPORT GROUP

8:45- POSTER SOCIAL

THURSDAY, SEPTEMBER 23

- 7:00- 8:00 AM BREAKFAST
- 8:00- 10:00 AM SESSION 7 ACCELERATED AGING
CHAIRS: Sam Wilson and Yie Liu
- 8:00- 8:20 AM **Vilhelm Bohr:** Cockayne syndrome and BER
- 8:20- 8:40 AM **David Wilson:** Roles of Cockayne Syndrome Proteins in Repairing Endogenous DNA Damage
- 8:40- 9:00 AM **PJ Brooks:** Molecular mechanisms underlying the very different neuropathologies observed in CS and XP
- 9:00- 9:20 AM **Matthew Longley:** Can the severity of age-related mitochondrial diseases be predicted by biochemical deficiencies of missense variants of the human mitochondrial DNA helicases?
- 9:20- 9:40 AM **Yie Liu:** Oxidative base damage and base excision repair deficiency associated with multiple telomere defects in budding yeast
- 9:40- 10:00 AM **Bennett Van Houten:** DNA poly and loss of mitochondrial function
- 10:00- 10:30 AM COFFEE BREAK
- 10:30- 11:10 AM SESSION 8 RESEARCH ON NEURODEGENERATION
CHAIRS: James Cleaver and Cynthia McMurray
- 10:30- 10:50 **Cynthia McMurray:** Oxidation and the effects of CSB in the aging brain: lessons from Huntington's disease
- 10:50- 11:10 **Arne Klungland:** Somatic CAG expansion in Huntington's disease role of DNA repair in different modes of expansion
- 11:10- 11:40 AM PANEL DISCUSSION 2 MECHANISMS OF NEURODEGENERATION AND AGING
CHAIRS: James Cleaver and David Wilson
Bohr, Wilson, McMurray, Niedernhofer, Van Houten, Klungland, Egly, others
- 11.40- 1:00 PM LUNCH
- 1:00- 2:40 PM SESSION 9 TRANSCRIPTION
CHAIRS: Michael Seidman and Michael Bustin
- 1:00 - 1:20 PM **Jean Marc Egly:** Transactivation defect by thyroid hormone receptors promotes dysmyelination in trichothiodystrophy
- 1:20 -1:40 PM **Leon Mullenders:** Transcription-coupled repair in mammalian cells
- 1:40 - 2:00 PM **Michael Bustin:** Modulation of DNA damage responses by chromatin-binding architectural proteins
- 2:00 - 2:20 PM **Bernd Kaina:** XPF/NER is regulated by c-Fos/AP-1 following UV irradiation

2:20 - 2:40 PM **David Levens:** The FBP/FIR/TFIIH System: A prototype for the Genome-wide Regulation of Gene Expression by DNA Structure and Topology
2:40- 4:00 PM FREE TIME
3:00- 3:30 PM COFFEE AVAILABLE

4:00 – 4:30 PM **PANEL DISCUSSION 3: TRANSCRIPTION AND REPAIR**
CHAIRS: Jean Marc Egly and Leon Mullenders
Participants: Bustin, PJ Brooks, Bohr, Lehmann, Tanaka, Niedernhofer, others

4:30- 5:30 PM **SESSION 10 POSTER TALKS**
CHAIRS: Michael Seidman and John DiGiovanna
Talks to be selected from posters presented at the meeting
Each of the 6 talks will be 7 min followed by 3 min discussion

ALL POSTERS MUST BE REMOVED AFTER THIS SESSION

5:30 – 7:00 PM FREE TIME

7:00 PM- BANQUET

FRIDAY, SEPTEMBER 24

7:00- 8:30 AM BREAKFAST

8:30 – 9:50 AM **SESSION 11 DNA REPAIR PROTEIN FUNCTION**
CHAIRS: Orlando Scharer and Vilhelm Bohr

8:30 – 8:50 AM **Orlando Scharer:** Regulating nuclease activities in nucleotide excision repair and other repair pathways

8:50 – 9:10 AM **Kiyoji Tanaka:** XPD forms a TFIIH-independent protein complex involved in chromosome segregation

9:10- 9:30 AM **Weidong Wang:** RIF1 provides a new DNA binding interface for the Bloom syndrome complex to maintain normal replication

9:30- 9.50 AM **Robert Brosh:** Mechanisms of human DNA repair helicases in the maintenance of genomic instability

9.50–10:20 AM COFFEE BREAK

10:20– 11:00 AM **PANEL DISCUSSION 4: GOING FORWARD, RESEARCH NEEDS, SOURCES OF FUNDING, DIAGNOSTIC TESTING ...**
CHAIR: Kenneth Kraemer

Participants: Sarkany, Carl Baker (NIAMS), Lehmann, Family Support groups, PJ Brooks (ORD), others

11:00 – 11:30 PM CLOSING REMARKS – Bohr, Kraemer, Niedernhofer

12:00- 1:00 PM LUNCH – Adjourn