The study of rare human genetic cancer susceptibility syndromes has led to a broader view of cancer pathogenesis, diagnosis, and treatment in the general population. The systematic study of rare cancer-prone families has elucidated a complex network of cancer proteins and tumor suppressors, many of which function in DNA repair, cell cycle checkpoint control, and telomere maintenance. The primary focus of this AACR Special Conference was the cooperation of cancer susceptibility proteins in tumor initiation, progression, and metastasis; how mechanisms of control of mRNA/Protein Translation, when dysregulated, can lead to tumorigenesis; and how cancer susceptibility syndromes have elucidated new cell regulatory pathways.

The AACR thanks the following organizations for their generous support of the travel awards provided at this conference.

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Conference Program

WEDNESDAY, JANUARY 29

OPENING SESSION / KEYNOTE TALKS
7:30 p.m.-8:30 p.m.

7:30-7:45 Introductions/Welcome from Co-Chairpersons

7:45-8:30 Gene regulatory network approaches to interpreting breast cancer GWAS results
Bruce Ponder, Cancer Research UK, Cambridge, United Kingdom

OPENING RECEPTION
8:30 p.m.-10:00 p.m.

THURSDAY, JANUARY 30

BREAKFAST
7:30 a.m.-8:30 a.m.

PLENARY SESSION 1: CANCER SUSCEPTIBILITY
8:30 a.m.-10:15 a.m.
Session Chairperson: Allan Balmain, UCSF Helen Diller Family Comprehensive Cancer Center, San Francisco, CA

8:30-9:00 Genetic network analysis of cancer susceptibility
Allan Balmain

9:00 -9:30 DICER1: From ontogenesis to oncogenesis
William D. Foulkes, McGill University, Montreal General Hospital, Montreal, QC, Canada

9:30-10:00 Clonal evolution of hematopoiesis in inherited bone marrow failure syndromes
Monica Bessler, Children’s Hospital of Philadelphia, University of Pennsylvania, Philadelphia, PA

10:00-10:15 Discussion / Q&A

BREAK
10:15 a.m.-10:30 a.m.
PLENARY SESSION 2: FANCONI ANEMIA / BRCA2
10:30 a.m.-12:15 p.m.
Session Chairperson: Markus Grompe, Oregon Health & Science University, Portland, OR

10:30-11:00  Fanconi's anemia: Emerging therapeutic opportunities
Markus Grompe

11:00-11:30  Toxic aldehydes and the in vivo function of the FA repair pathway
Ketan J. Patel, MRC Laboratory of Molecular Biology, Cambridge, United Kingdom

11:30-12:00  Double-strand break repair and tumor suppression
Maria Jasin, Memorial Sloan-Kettering Cancer Center, New York, NY

12:00-12:15  Discussion / Q&A

POSTER SESSION / LUNCH
12:15 p.m.-3:00 p.m.

PLENARY SESSION 3: COWDEN AND TSC SYNDROMES
3:00 p.m.-4:45 p.m.
Session Chairperson: Elizabeth P. Henske, Brigham and Women’s Hospital, Boston, MA

3:00-3:30  Title to be announced
Pier Paolo Pandolfi, Beth Israel Deaconess Medical Center, Boston, MA

3:30-4:00  PTEN and PI3K signaling in brain development and disease
Suzanne J. Baker, St. Jude Children’s Research Hospital, Memphis, TN

4:00-4:30  Tuberous sclerosis and LAM: Targeting mTOR-dependent metabolic dependencies
Elizabeth P. Henske

4:30-4:45  Discussion / Q&A

EVENING OFF / DINNER ON OWN
4:45 p.m.-
FRIDAY, JANUARY 31

BREAKFAST
7:30 a.m.-8:30 a.m.

PLENARY SESSION 4: DNA DAMAGE RESPONSE / P53-ASSOCIATED SYNDROMES
8:30 a.m.-10:45 a.m.
Session Chairperson: David Malkin, University of Toronto Hospital for Sick Children, Toronto, ON, Canada

8:30-9:00  Li-Fraumeni syndrome: p53 and beyond
            David Malkin

9:00-9:30  New insights into DNA double-strand break responses
            Michael B. Kastan, Duke Cancer Institute, Durham, NC

9:30-10:00 Regulation of the RNF168-dependent response to DNA double-strand breaks
            Daniel Durocher, Samuel Lunenfeld Research Institute, Toronto, ON, Canada

10:00-10:30 P53-induced bone marrow failure syndromes
              Alan D. D’Andrea, Dana-Farber Cancer Institute, Boston, MA

10:30-10:45 Discussion / Q&A

BREAK
10:45 a.m.-11:00 a.m.

PLENARY SESSION 5: CHEMOPREVENTION
11:00 a.m.-12:45 p.m.
Session Chairperson: Phillip A. Dennis, Johns Hopkins University, Baltimore, MD

11:00-11:30 Title to be announced
            Phillip A. Dennis

11:30-12:00 Risk reduction in hereditary breast cancer syndromes
            Judy Garber, Dana-Farber Cancer Institute, Boston, MA

12:00-12:30 Amelioration of ionizing irradiation damage in Fanconi anemia (Fancd2-/- mice) by GS-Nitroxide (JP4-039)
            Joel S. Greenberger, University of Pittsburgh Shadyside Medical Center, Pittsburgh, PA

12:30-12:45 Discussion / Q&A

LUNCH ON OWN / FREE TIME
12:45 p.m.-3:00 p.m.
PLENARY SESSION 6: OTHER SYNDROMES
3:00 p.m.-4:45 p.m.
Session Chairperson: Laura J. Niedernhofer, The Scripps Research Institute, Jupiter, FL

3:00-3:30 Title to be announced
Laura J. Niedernhofer

3:30-4:00 Identification of pathways that prevent genome instability
Richard D. Kolodner, Ludwig Institute for Cancer Research, UCSD School of Medicine, La Jolla, CA

4:00-4:30 Molecular basis for cancer predisposition in Bloom’s syndrome
Ian D. Hickson, University of Copenhagen, Copenhagen, Denmark

4:30-4:45 Discussion / Q&A

EVENING OFF / DINNER ON OWN
4:45 p.m.-

SATURDAY, FEBRUARY 1

BREAKFAST
7:15 a.m.-8:15 a.m.

PLENARY SESSION 7: AGING-, TeLOMERe-, AND RIBOSOME-RELATED SYNDROMES
8:15 a.m.-10:00 a.m.
Session Chairperson: Inderjeet S. Dokal, Barts and the London School of Medicine and Dentistry, London, United Kingdom

8:15-8:45 Dyskeratosis congenita and related syndromes
Inderjeet S. Dokal

8:45-9:15 A telomere-dependent DNA damage checkpoint induced by prolonged mitotic arrest
Jan Karlseder, Salk Institute for Biological Studies, La Jolla, CA

9:15-9:45 Age-related aneuploidization in cancer, aging, and senescence
Jan M. van Deursen, Mayo Clinic, Rochester, MN

9:45-10:00 Discussion / Q&A

BREAK
10:00 a.m.-10:15 a.m.
PLENARY SESSION 8: BRCA1
10:15 a.m.-11:30 a.m.
Session Chairperson: Andre Nussenzweig, National Cancer Institute-CCR, Bethesda, MD

10:15-10:45  Role of BRCA1 in genome stability
Andre Nussenzweig

10:45-11:15  The BRCA1 tumor suppressor network
Roger A. Greenberg, University of Pennsylvania, Philadelphia, PA

11:15-11:30  Discussion / Q&A

CLOSING REMARKS / DEPARTURE
11:30 a.m.