

Radiation Biology Center Mini-symposium on Cancer Genome Evolution

Date and Time

15:00-17:00, Oct. 23rd (Mon), 2023.

Venue (in-person only. preregistration not required.)

Memorial Auditorium and Museum
of Medicine (基礎医学記念講堂)

Program (Official language of this symposium is English)

◆ 15:00-15:30

Evolutionary history of breast cancer

Dr. Nobuyuki KAKIUCHI

Program-specific Associate Professor, Hakubi Center/
Graduate School of Medicine, Kyoto Univ.



◆ 15:30-16:00

Toward an understanding of how chromosome translocations occur

Dr. Takaaki YASUHARA,

Professor, Radiation Biology Center, Graduate School of
Biostudies, Kyoto Univ.



◆ 16:00-17:00

Targeting cancer evolution through the mechanisms that control genome integrity

Dr. Ashok VENKITARAMAN

Director, The Cancer Science Institute of Singapore.
Distinguished Professor of Medicine, The National
University of Singapore.

Research Director, Institute of Molecular & Cellular Biology,
Agency for Science, Technology and Research (A*STAR).



Contact

Prof. Hiroshi HARADA (P.A.: Sachie IKEDA)

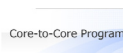
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Abstracts of the Invited talks

◆ Evolutionary history of breast cancer

Program-specific Associate Professor,
Dr. Nobuyuki KAKIUCHI

Recent studies have shown frequent evolution of clones carrying common cancer drivers in apparently normal tissues, which are implicated in cancer development. However, it is still poorly understood the early history of cancer evolution. I will introduce unique evolutionary histories of breast cancers harbouring der(1;16), a common driver alteration in breast cancers. Our findings provide new insight into how breast cancer evolves.

(Ref: *Nature*. 620:607-614. 2023.)

◆ Toward an understanding of how chromosome translocations occur

Professor,
Dr. Takaaki YASUHARA

Cancer is often characterized by specific types of genomic alterations. Our laboratory has been interested in mechanisms by which chromosome translocations occur. In this talk, I will summarize our recent findings that are potentially critical in the formation of gene fusions and discuss future directions of this field.

(Ref: *Mol Cell*. 82:2738-2753.e6. 2022; *Cell Rep*. 38:110335. 2022; *Cell*. 175:558-570.e11. 2018.)

◆ Targeting cancer evolution through the mechanisms that control genome integrity

Professor,
Dr. Ashok VENKITARAMAN

Genome instability occurs universally in human cancers, often arising at early steps during carcinogenesis. Following our initial discovery that the breast cancer gene, BRCA2, controls genome integrity through its functions in DNA repair and replication, we have studied inherited BRCA2 mutations as a powerful model to elucidate and target the mechanisms underlying human tumour suppression and cancer evolution. Here, I will discuss our recent work concerning mechanisms by which metabolic stresses trigger cancer evolution, in BRCA2-deficient cells, and in other systems.

(Ref: *Cell*. 169:1105-1118. 2017; *Cell Rep*. 36:109478. 2021; *Nat Commun*. 14:5206. 2023; *Nat Commun*. 14:1726. 2023; *Cell Metab*. 35:1147-1162.e7. 2023)

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