The Graduate School of Medical Sciences
Training and Educational Program
for Eradication of AIDS Course
- Practice on AIDS VI -

IRCMS & CAIDS Seminar

Friday, 23 January, 2015 16:00-17:00

2F Seminar Room, Center for AIDS Research

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Virus Restriction and Cancer Mutation by the APOBEC Family of DNA Cytosine

-Abstract-

The human APOBEC family of polynucleotide cytosine deaminases is comprised of nine active enzymes: APOBEC1, AID, APOBEC3A/B/C/D/F/G/H. The namesake, APOBEC1 is a bona fide RNA editing enzyme that is guided by an editing complex to physiological target mRNA species such as the APOB message. APOBEC1 also has robust DNA cytosine editing activity and has been implicated recently in esophageal adenocarcinomas. AID activity appears specific to DNA cytosines, and this enzyme is essential for antibody gene diversification by somatic hypermutation and class switch recombination. AID activity a likely contributor to mutagenesis and driver events in B cell cancers. The seven APOBEC3 enzymes have strong biochemical preferences for single-stranded DNA substrates and have been broadly implicated in providing innate immunity to parasitic DNA elements including naked DNA, viruses, and transposons (the best-studied being HIV-1). At least one APOBEC3 subfamily member, APOBEC3B, is a source of mutation in many different cancer types.

Organized by
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