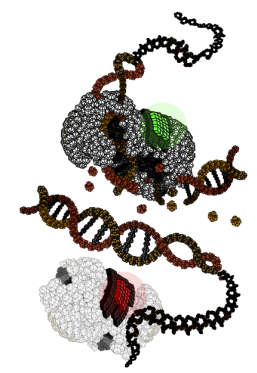


# ADARs and CRISPR-Cas

(Assoc Prof Tan Meng How, CCEB)



- A-to-I editing mediated by the ADAR enzymes
  - Functions & regulation of editing in development and human diseases.
  - ADARs as a novel therapeutic modality to correct disease-causing mutations.
- Editing-independent functions of the ADAR enzymes
  - ADARs functioning simply as RNA-binding proteins to impact on other RNA metabolic processes.
- New technologies to study RNA editing & modifications
  - Nanopore direct RNA sequencing coupled with deep learning, single-cell & spatial epitranscriptomics.

- Development of new CRISPR-based tools for genome engineering
  - Precise editing via homology-directed repair.
  - Precise editing without double-stranded breaks.
  - Exploration of new Cas enzymes.
- Development of new CRISPR-based tools for transcriptome engineering
  - Programmable tools that can recognize and modify selected RNA molecules, such as altering splicing, translation, or chemical marks.
- Applications of CRISPR screens
  - Identification of genetic factors that mediate biological processes (basic science) or enhance production of biologics or value-added chemicals (biotechnology).