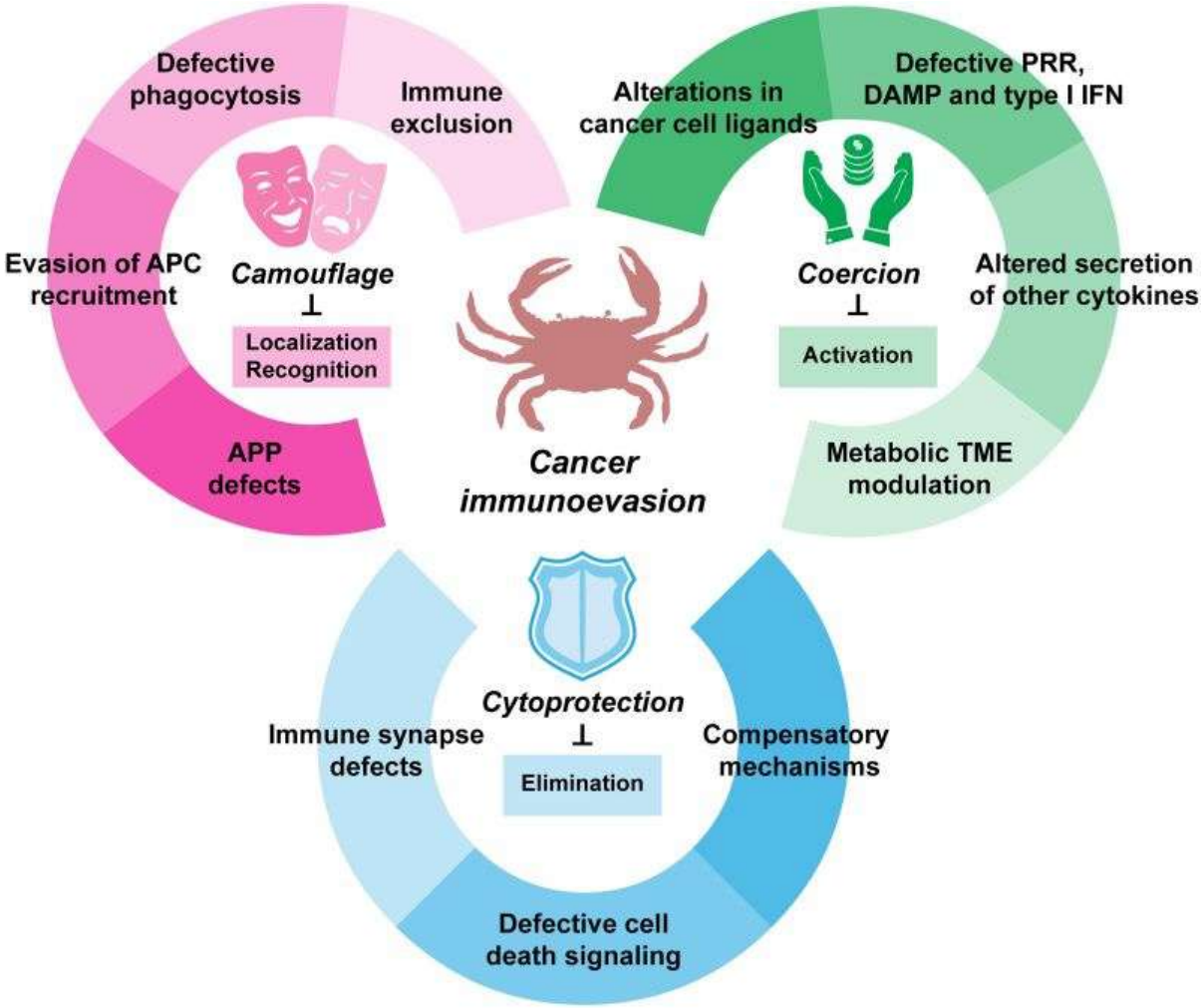
KEYNOTE LECTURE

Introduce: *M.P. Martelli*

Editing genetico dei linfociti per il trattamento dei tumori

C. Bonini

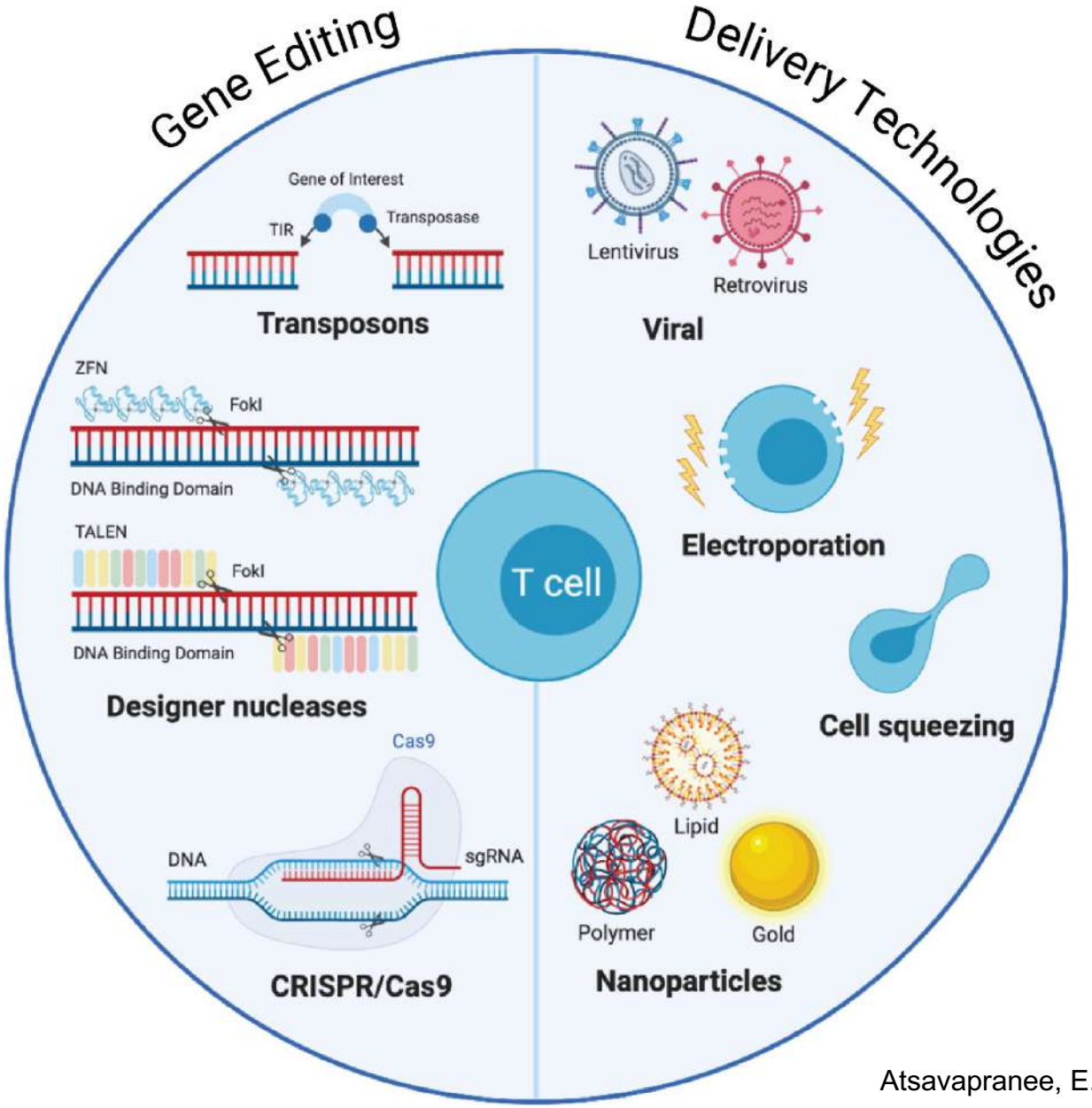


The “three Cs” of cancer immune evasion

- **Camouflage** refers to cancer cells’ ability to disguise themselves from the immune system, preventing recognition as a threat.
- **Coercion** involves the direct or indirect inhibition of immune functions by neoplastic cells.
- **Cytoprotection** describes the capacity of malignant cells to withstand cytotoxic agents.

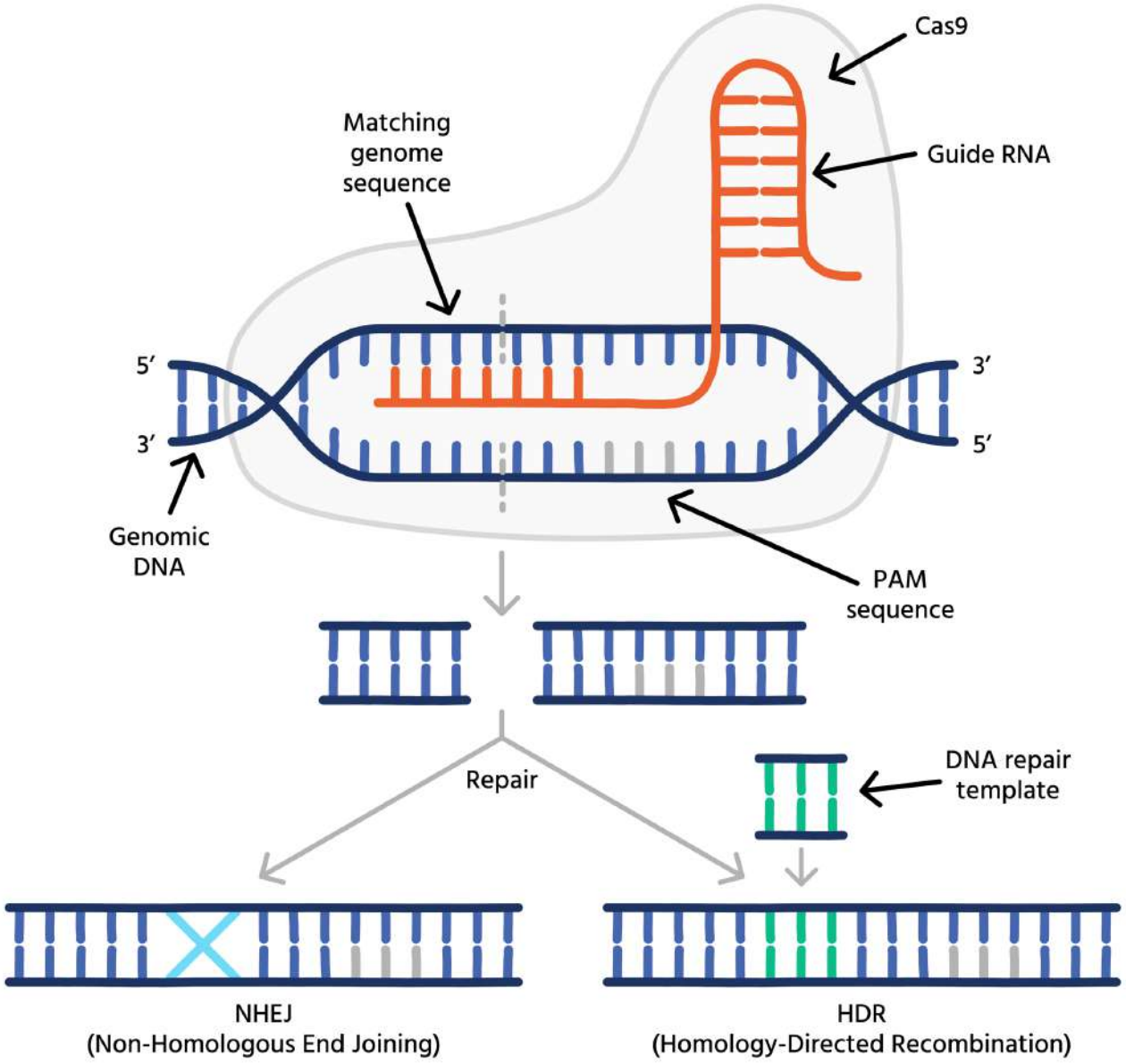
Galassi, C. et al. *Cancer Cell* 2024;42(11):1825-1863

T-cell Gene Editing



Atsavapranee, E.S. et al. EBioMedicine. 2021 May:67:103354.

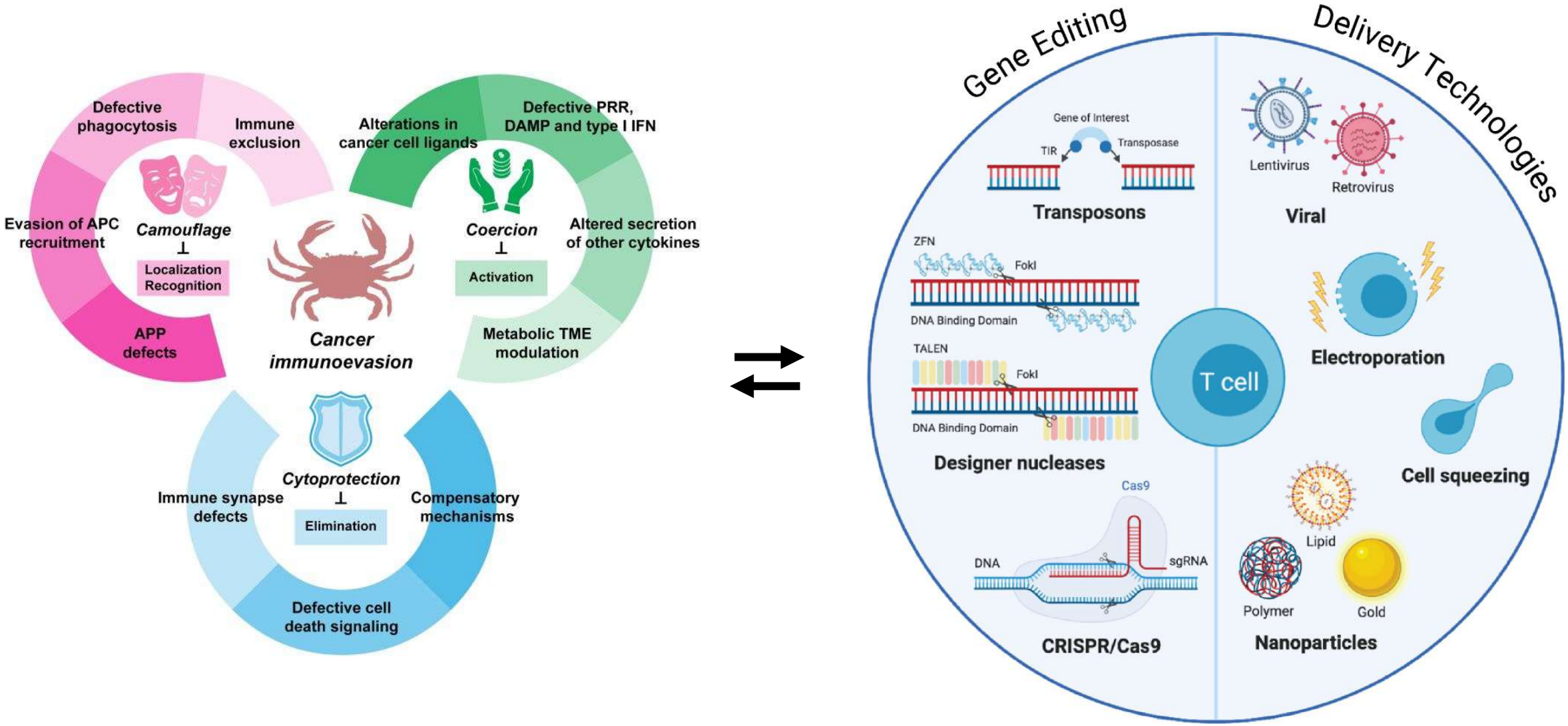
CRISPR-Cas9 Gene Editing



CRISPR gene editing ("clustered regularly interspaced short palindromic repeats") is a genetic engineering technique. By delivering the Cas9 nuclease complexed with a synthetic guide RNA (gRNA) into a cell, the cell's genome can be cut at a desired location, allowing existing genes to be removed or new ones added in vivo.

In the absence of a repair template, cells will repair the break via error-prone non-homologous end joining (NHEJ), leading to functional gene disruption (gene/protein knock-out). Alternatively, a repair template can be used to introduce specific sequence changes via homologous-directed repair (HDR).

T-cell Gene Editing for Cancer Immunotherapies



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