

Tool For Conditional Cell Ablation

Reference: VAL-674-IRCM

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Background



Targeted cell ablation is a valuable approach to study cell functions during organ development, tissue homeostasis and regeneration in the context of a whole organism. Initially, cell/tissue ablations were generated by surgery-based techniques. However, since distinction of neighbouring but genetically distinct cell types is difficult to establish, genetic-based approaches were developed. Most strategies imply the use of cytotoxic products to induce cell death. However, these cytotoxins, like the diphtheria toxin for example, are highly toxic and any leakage may result in non-specific cell ablation.

Technology

The “TRIP” technology or Targeted Recombination between Inverted *loxP* sites, was developed by Dre Marie Kmita from the *Institut de recherches cliniques de Montréal* (IRCM) and provides a simple tool for conditional cell ablation.

Results

A transgenic mouse having a set of *loxP* sites in inverted orientation on chromosome 2 was engineered and was crossed to a *Cre*-expressing mouse. It was demonstrated that targeted recombination between inverted *loxP* sites (TRIP) generate a genomic rearrangement which is detrimental for proliferating cells. The extent of cell death following TRIP has provided evidence that TRIP is an efficient mean for targeted ablation of proliferating cells within a genetically defined cell population.

Applications

- Mouse model for human disease
- Study cell functions in the context of a whole organism (organ development, tissue homeostasis, regeneration)

Competitive Advantages

- Large repertoire of *Cre*-expressing strains
- Strains obtained by a simple breeding step
- No use of toxins or drug injection
- Only known procedure specific for proliferating cells

Patent Status

CA and US pending application (Q1/2009)

Business Opportunity

Univalor is seeking a commercial partner for licencing/distribution opportunity. This murine model can also be made available through MTA.

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