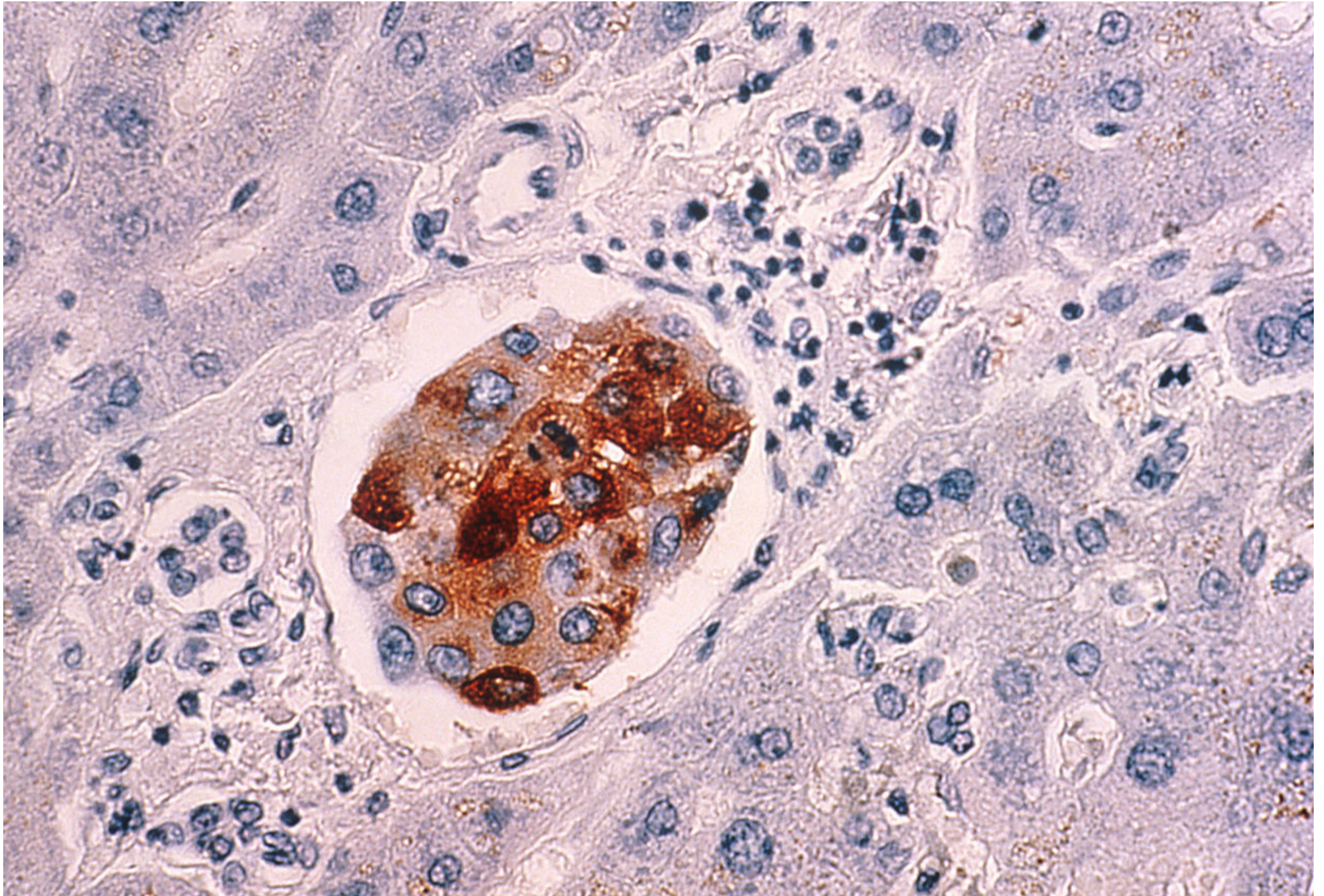


Fusion Proteins for the Detection of Apoptosis

An easy to produce SNAP tag based fusion protein which can autoconjugate with any O₆-BG for selective detection of phosphatidylserine

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Please note, header image is purely illustrative. Source: NCI, Wikimedia, CC0

Background

The development of novel therapeutic agents requires reliable and accurate analyses of the preclinically tested cell conditions, such as apoptosis. The detection of apoptotic cells by Annexin 5 coupled to fluorophores has often shown limitations in the choice of the dye due to interference with other fluorescent-labelled cell markers. The limitations to existing products include non-availability of robust site-selective agents for labelling of proteins. Existing probes are also developed via less-preferred chemical modification techniques, causing heterogeneous conjugated products and fluorescence quenching.

Technology Overview

Although most commercial vendors do not recommend their annexin A5 detection kit for adherent cells, this technology has shown optimal performance for the use of Annexin A5-SNAP in macrophages. The combination of the apoptosis-specific binding protein AV with the SNAP-tag provides an inventive method to facilitate protein labelling using several, easy to change, fluorescent dyes at once. It is cheaper and allows an ordinary exchange of dyes and easier use of other fluorescent-labelled cell markers, which is of high interest for the preclinical testing of therapeutic agents e.g. cancer research.

Benefits

This invention provides an easy to produce SNAP tag based fusion protein for selective detection of PS. There is a distinct advantage over the current state of the art including auto-conjugation with any benzyl guanine-modified label under physiological conditions in a 1:1 stoichiometry, and has other advantages including:

- Eliminates the need for enzymatic attachment.
- Homogeneous annexin A5 conjugation and the ability to control the number of bound fluorophores.
- Reduction of fluorescence quenching and works at neutral pH.
- An easy, rapid and versatile method for functionalization of proteins.

Applications

- Medicinal and botanical manufacturing.

- Diagnostic tools for detection of apoptosis.
- Reagent development for academic research, clinical research institutes, biomed screening labs.
- Post cancer treatment monitoring.

Opportunity

UCT is looking for commercial partners and potential licensees to commercialize the technology.

Patents

- [PCT/IB2018/059704](#)

IP Status

- Patented

Seeking

- Development partner
- Commercial partner
- Licensing
- Seeking investment