

# Novel Photoimmunoconjugates for Use in Photodynamic Therapy

The usage of photosensitizers as cytotoxic components of the immune-fusion proteins, based on novel SNAP-tag technology

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## Background

Photodynamic Therapy (PDT) is a minimally invasive treatment for cancer. It consists of photosensitizing agents that are activated by light and indirectly cause cell damage and eventual cell death. However, it damages healthy tissue as well, as it lacks specificity for cancer cells.

To increase specificity, photosensitizing agents can be conjugated to tumour-specific antibodies for treatment known as Photoimmunotherapy (PIT). Chemical coupling of photosensitizing agents directly to antibody fragments is very difficult as it can affect specificity and binding of antibody, as well as activity of the compound.

## Technology Overview

The construction of a specific immuno-fusion protein using the SNAP-tag technology that targets specific cancer cells and contains a novel photosensitizing agent that can be used for cancer Photodynamic Therapy (light therapy for cancers).

## Benefits

Photodynamic therapy (PDT) is a minimally invasive approach for the treatment of cancer.

The invention utilizes SNAP-tag fusion proteins as an improved strategy for conjugation of the antibody to the photosensitizing agent, and comprises of the following parts:

- Protein which can specifically bind EGFR+ cancer cells
- Photosensitizing agent which is covalently coupled to the binding protein via the modified human AGT (hAGTm) (SNAP-tag)

The scFv-425-SNAP-tag fusion protein allowed the specific conjugation of a photosensitizer, such as chlorin e6, modified with O(6)-benzyl-guanine, generating a homogeneous product that was delivered specifically to EGFR+ cancer cells and resulted in significant, tumor cell-specific cytotoxicity.

## Applications

- Immuno-oncology
- Photoimmunotherapy

# Opportunity

Licensing; development partner; funding

## Patents

- [PCT/EP2012/055022](#)

## IP Status

- Patented

## Seeking

- Development partner
- Commercial partner
- Licensing
- Seeking investment