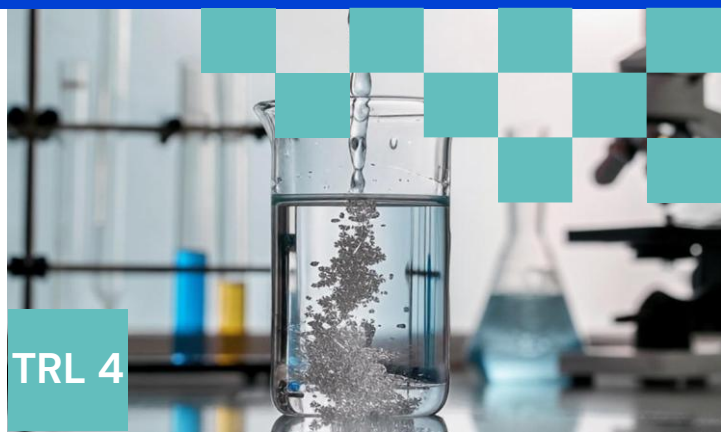
chemistry
biology

Fluorescent sulforaphane derivatives with anti-cancer applications



About the solution

The invention concerns fluorescently labelled sulforaphane derivatives with strong and selective anticancer activity. These compounds combine the therapeutic properties of isothiocyanates with the ability to monitor their cellular behaviour through an integrated fluorophore.

The derivatives show higher anticancer potency than sulforaphane and act selectively on prostate and breast cancer cells while remaining non-toxic to healthy cells. Studies confirm rapid cellular uptake and predominant mitochondrial accumulation.

The fluorophore enhances anticancer activity and enables imaging of compound distribution as well as analysis of uptake and clearance dynamics.

The isothiocyanate group remains essential for activity, as demonstrated by inactive control derivatives lacking this motif.
The invention offers both a potential therapeutic molecule and a research tool for tracking cellular mechanisms of action.

Technology readiness level

TRL 4 - Technology validated in laboratory conditions.

Research Team

University of Gdańsk
PhD Eng. Irena Bylińska
PhD Aleksandra Hać
Prof.. Wiesław Wiczk
MSc Agnieszka Stepasiuk
MSc Marta Sildatk-Czoska

IP Protection

The invention is protected by a patent application in the Polish Patent Office under the number: **P.445732**

Applications:

- Development of selective next-generation anticancer therapeutics,
- Cellular imaging of sulforaphane derivative distribution and metabolism,
- Research on drug mechanisms and targeted therapy development.

Cooperation opportunities:

- Licensing for pharmaceutical and biotechnology companies,
- Joint R&D projects aimed at optimizing compound design,
- Preclinical validation and pilot implementation in R&D laboratories.

biuro@ctt.ug.edu.pl
ul. Wita Stwosza 63,
80-308 Gdańsk
www.ctt.ug.edu.pl

Małgorzata Bastian-Michalska
+48 725 994 400