chemistry
biology

Fluorescent sulforaphane analogues for targeted imaging of cancer cells

About the solution

The invention concerns fluorescently labelled sulforaphane derivatives exhibiting strong and selective anticancer activity. These compounds combine therapeutic properties with the ability to track their cellular behaviour through a fluorophore attached via an amino group.

The derivatives effectively reduce the viability of prostate and breast cancer cells while remaining non-toxic to healthy cells. Studies confirm rapid cellular uptake, predominant mitochondrial accumulation, and long intracellular retention.

The isothiocyanate group is essential for activity, as demonstrated by inactive analogues lacking this moiety. The fluorophore enables real-time monitoring of compound distribution, accumulation kinetics, and cellular clearance.

The invention integrates the features of a potential anticancer therapeutic and a research tool for analysing molecular mechanisms at the cellular level.

Technology readiness level

TRL 4 - Technology validated in laboratory conditions.

Research Team

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IP Protection

The invention is protected by a patent application in the Polish Patent Office under the number: **P.445730**

Applications:

- Design of novel isothiocyanate-based anticancer agents,
- Rapid imaging of intracellular compound behawior,
- Studies on drug selectivity and cellular responses.

Cooperation opportunities:

- Technology or compound licensing,
- Joint development of enhanced derivatives,
- Preclinical testing with industrial partners.

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