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# Fluorine and selenium-containing analogs of sulforaphane: synthesis and investigations of anticancer activity

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Sulforaphane is a natural product, belonging to the group of organic isothiocyanates. Numerous reports have been devoted to the investigations of the biological activity of sulforaphane and its selected analogs due to their antitumor, anti-inflammatory and antioxidant properties.

In search for new derivatives of potentially better biological properties, investigations were conducted of the synthesis of appropriately modified analogs. The first modification included replacement of the S-methyl group with various organofluorine substituents $R_F$ (both alkyl and aryl). The second one consisted in the replacement of the isothiocyanate group (N=C=S) with the isoselenocyanate moiety (N=C=Se) in the organofluorine analogs obtained. The resulting new derivatives also differed in the number of methylene groups in the aliphatic chain (4 or 5) and in the oxidation state of the central sulfur atom. The last modification comprised an additional replacement of the sulfinyl moiety with the selenium atom.

The final products were *in vitro* examined for their anticancer activity in the National Medicines Institute in Warsaw. The results of these studies clearly demonstrate reasonableness of all the modifications which were made in the molecule of natural sulforaphane. All the tested compounds exhibit higher cytotoxic activity against the tumor cell lines investigated in comparison to sulforaphane.