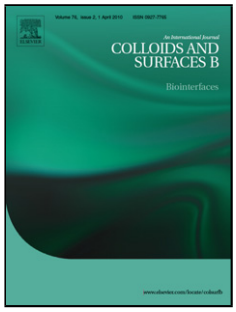
# Accepted Manuscript

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# Activity enhancement of selective antitumoral selenodiazoles formulated with poloxamine micelles

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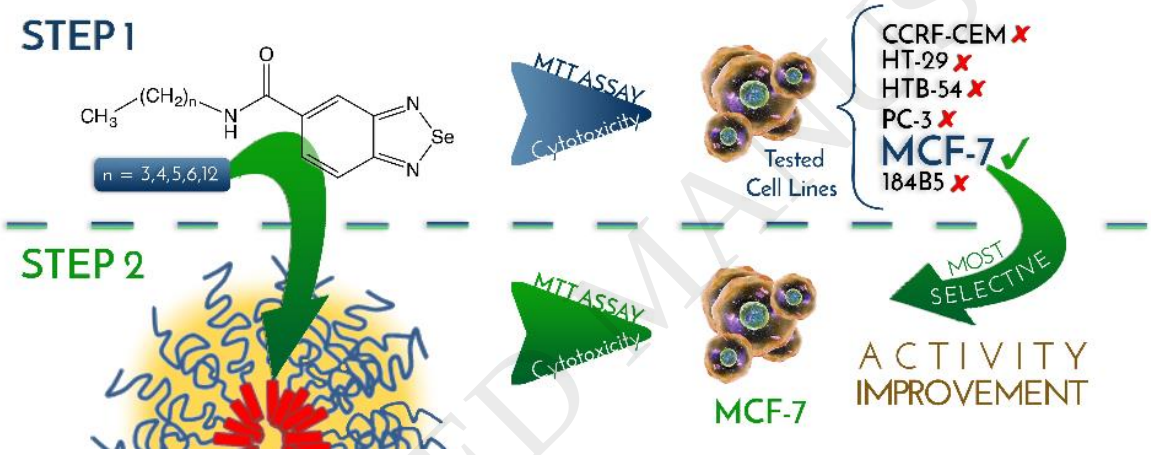
Graphical abstract




## Highlights

- Tetronic micelles were used as nanocarriers for a new family of selenodiazoles
- The micelles enhance the water-solubility and cytotoxicity of the Se-derivatives
- The new Se constructs are selective towards cancer prostate and breast cancer cells
- Increasing the length of the constructs' hydrocarbon chain increases their activity
- SE12 (side chain with 12 methylenes) shows a activity 100-fold higher tan *ebselen*

**ABSTRACT:**
Selenium (Se) incorporated into organic frameworks has demonstrated anticancer activity against several cancer types. One of the drawbacks of most of these constructs is their poor solubility and bioavailability, which can be overcome with the use of suitable nanocarriers. We have synthesized a series of 5-substituted amide selenodiazoles, based on the parent structure of ebselen, an organoselenium drug with proven cytoprotective activity, and solubilized them in polymeric micelles of poloxamines, poly(ethylene oxide)-poly(propylene oxide) X-shaped tetrablock-copolymers. Scattering methods (SANS and DLS) were employed to characterize the micellar nanocarriers. MTT biological evaluation