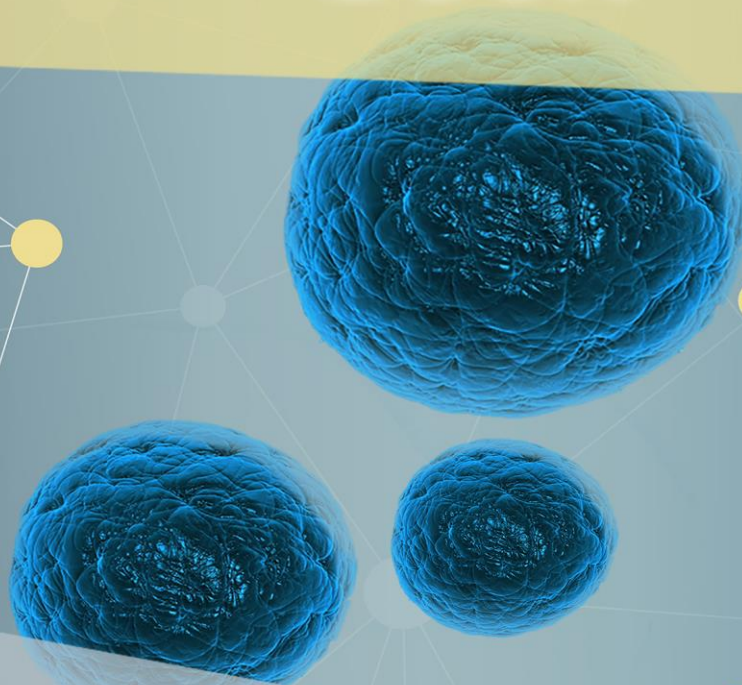


Serbian Association for Cancer Research

**5th CONGRESS OF SDIR:
TRANSLATIONAL POTENTIAL OF
CANCER RESEARCH IN SERBIA**

**ABSTRACT
BOOK**



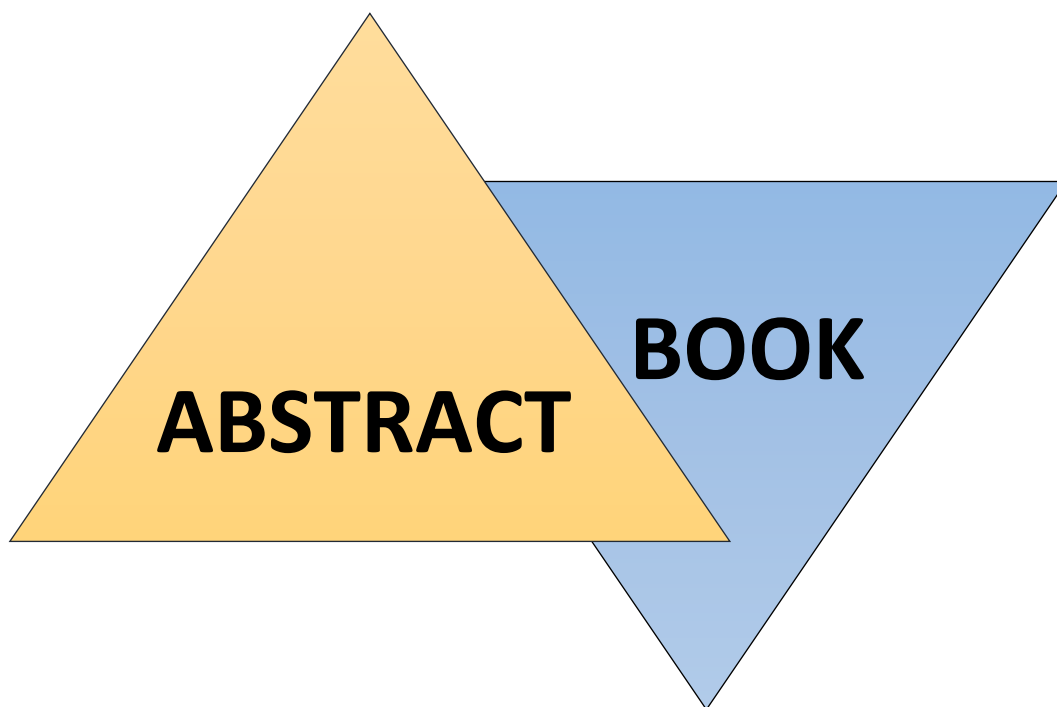
**Virtual event
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5th CONGRESS OF THE SERBIAN ASSOCIATION FOR
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With international participation



TRANSLATIONAL POTENTIAL OF CANCER
RESEARCH IN SERBIA

SDIR – 5

Virtual event, December 3, 2021

THE FIFTH CONGRESS OF THE SERBIAN ASSOCIATION FOR CANCER RESEARCH

with international participation
"TRANSLATIONAL POTENTIAL OF CANCER RESEARCH IN
SERBIA "

December 3, 2021, Virtual event
Serbian Association for Cancer Research (SDIR) is a member of the European Association for
Cancer Research (EACR).
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dr sc. med. Mirjana Branković-Magić

THE FIFTH CONGRESS OF THE SERBIAN ASSOCIATION FOR CANCER RESEARCH
with international participation "Translational potential of cancer research in Serbia" Virtual event,

December 3, 2021

Publisher: Srpsko društvo istraživača raka, 11000 Beograd
Year: 2021.

Editors: *dr sc. Marija Đorđić Crnogorac, dr sc. Milica
Nedeljković*

Print: Srpsko društvo istraživača raka, Beograd

Number of copies: 20

ISBN: 978-86-919183-3-0.

CIP - Каталогизacija u publikaciji - Narodna biblioteka Srbije,
Beograd

616-006(048)(0.034.2)

SERBIAN Association for Cancer Research. Congress (5 ; 2021)
Translational Potential of Cancer Research in Serbia [Elektronski izvor] :
abstract book / 5th Congress of the Serbian Association for Cancer
Research with International Participation SDIR-5, Virtual event, December
3, 2021 ; [editors Marija Đorđić Crnogorac, Milica Nedeljković]. – Beograd
: Srpsko društvo istraživača raka, 2021 (Beograd : Srpsko društvo
istraživača raka). - 1 elektronski optički disk (CD-ROM) ; 12 cm

Sistemski zahtevi: Nisu navedeni. - Nasl. sa naslovne strane dokumenta. -

Tiraž 20.

ISBN 978-86-919183-3-0

a) Онкологија - Апстракти

COBISS.SR-ID 52655625

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P45

Anticancer effects of sclareol and its derivatives in glioblastoma cells

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Background: Glioblastoma is the most common, aggressive and lethal brain tumor in adults with high proliferation rate, infiltrating nature and presence of multidrug resistance (MDR). Sclareol (SC) is a naturally occurring labdane type diterpene, derived from *Salvia sclarea*. We examined cell growth inhibition effect of SC and its derivatives (PAS and TNT groups of compounds) - hybrid (chimeric) molecules. Sclareol was covalently bonded to [1,2,4]triazolo[1,5-*a*]pyrimidin-7-amine scaffold, and different diamines were used as linkers. We also studied SC potential to reverse DOX resistance and its accumulation. The combination of SC with DOX has been earlier described to potentiate DOX cytotoxicity if simultaneously delivered in nanoparticles. **Material and Methods:** SC in combination with DOX as well as SC derivatives were tested on human glioma cell line U87, and its MDR counterpart - U87-TxR. MTT assay was used to examine inhibition of cell growth. Accumulation of DOX was measured by flow cytometry. **Results:** Thirteen out of nineteen TNT derivatives and three out of six PAS derivatives showed stronger anti-glioma effect than SC. Simultaneous treatment of SC with DOX demonstrated potential of SC to reverse DOX resistance. Even more, SC significantly increased DOX accumulation in both glioblastoma cell lines. **Conclusion:** Results obtained in this study showed a considerable synergy of SC and DOX in glioma cells. Better results observed with SC derivatives make them good candidates for further testing.

Keywords: chemotherapy, doxorubicin, glioblastoma, MDR, sclareol

Acknowledgement: Ministry of Education, Science and Technological Development, Republic of Serbia (ref. numbers 451-03-9/2021-14/200007, 451-03-9/2021-14/200168).

