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Book Name:	<u>From Muds to Meds: Cockle shell-derived nanoparticles as drug carrier against breast cancer</u>
Manuscript Number:	Ms_BPR_2744
Title of the Manuscript:	From Muds to Meds: Cockle shell-derived nanoparticles as drug carrier against breast cancer
Type of the Article	Monograph

PART 1: Review Comments

Compulsory REVISION comments	Reviewer's comment	Author's Feedback <i>(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)</i>
<p>Please write a few sentences regarding the importance of this manuscript for the scientific community. Why do you like (or dislike) this manuscript? A minimum of 3-4 sentences may be required for this part.</p>	<p>3000 BC - the first mention of breast cancer in Egyptian papyri. 1773 - the first documented case of breast removal due to cancer in Poland in Nieswierz (Oehm). 1874 - description of a form of the disease with nipple involvement (Pedgett). 1894 - description of radical mastectomy (Halstead). 1967 - discovery of estrogen receptors in breast cancer cells (Jensen). 1992 - discovery of the role of overexpression of the epidermal growth factor receptor type 2 (HER2). Breast cancer (BC) is a disease with a significant and even determining role in its pathogenesis and morphogenesis of molecular genetic factors. Breast cancer is a disease that occurs as a result of cell mutation. The disease can start in the milk ducts or lobules of glandular tissue. For several years now, breast tumors have accounted for one in eight cancer cases worldwide. It is the most common cancer in women. Therefore, the development of new methods of pharmacocorrection of such a severe disease is quite relevant and urgent. The chosen topic is interesting and attracts the attention of both scientists and practitioners, as well as those categories of the population who are more susceptible to breast cancer, which provides new information on oncogenesis and methods of combating this common pathological condition.</p>	
<p>Is the title of the article suitable? (If not please suggest an alternative title)</p>	<p>The title of the manuscript reveals the essence of the problem under study and is fully suitable for publication.</p>	
<p>Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here.</p>	<p>The abstract of the manuscript is quite comprehensive and describes the main research results in a new method of inhibiting the development of this pathological condition.</p>	
<p>Are subsections and structure of the manuscript appropriate?</p>	<p>The subsections and structure of the manuscript are formed logically, professionally and are sufficiently accessible for understanding and analysis in a new and promising approach to the use of natural substances for the treatment of a specific cancer - breast cancer.</p>	
<p>Please write a few sentences regarding the scientific correctness of this manuscript. Why do you think that this manuscript is scientifically robust and technically sound? A minimum of 3-4 sentences may be required for this part.</p>	<p>Part 1 provides introductory information on the nature and importance of nanotechnology in medicine. The modern classification of breast cancer and statistics on the incidence of breast cancer are presented in an accessible form, which confirms the relevance of the chosen research topic. The method of obtaining nanoagents derived from cockle shells is characterized. The objects and methods of research based on modern cellular technology, which is an important approach to the design of the experiment without the use of laboratory animals, according to the Research Initiatives and the Organization for the Protection and Welfare of Animals, which regulate the ethical principles of animal experiments, are disclosed. Part 2 presents new forms of design in the study using synthesized nanoparticles, which were tested using various in vitro assays to determine the degree of antitumor effect against breast cancer.</p>	

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	<p>In Part 3, we present the main unique results of the study, which are represented by microscopic observation of the cellular response to the synthesized nanoparticles. In this section of the monograph, there is indisputable evidence for the antitumor activity of nanoagents.</p> <p>Part 4 contains the results of tracking the supply of newly synthesized nanoparticles derived from tortoise shells to activate caspase-3 and BAX catalysts in the MCF-7 cell line, which activate the mechanisms of cancer cell apoptosis in their own way. This represents the mechanisms for implementing the anti-tumor activity of nanoagents.</p> <p>Conclusions and recommendations for future research are presented in the final Part 5, where the relevance and importance of the research results and the evidence base through the expert mental model and the selection of the composition of nanoparticles for the prospective treatment of one form of cancer - breast cancer are indicated.</p> <p>Thus, it is confirmed that the manuscript is scientifically based and technically correct.</p>	
<p>Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.</p> <p>-</p>	<p>The share of old literary references is acceptable and meets the requirements for writing scientific publications.</p>	
<p><u>Minor</u> REVISION comments</p> <p>Is the language/English quality of the article suitable for scholarly communications?</p>	<p>The quality and presentation of the English language is high-quality and meets the standards for the design of the article for maximum and effective scientific communication.</p>	
<p><u>Optional/General</u> comments</p>	<p>A very interesting and voluminous manuscript, which maximally reveals selected problems in the field of medicine, pharmacy, biology and pharmaceutical technology.</p>	

PART 2:

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
<p>Are there ethical issues in this manuscript?</p>	<p><i>(If yes, Kindly please write down the ethical issues here in details)</i></p>	

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