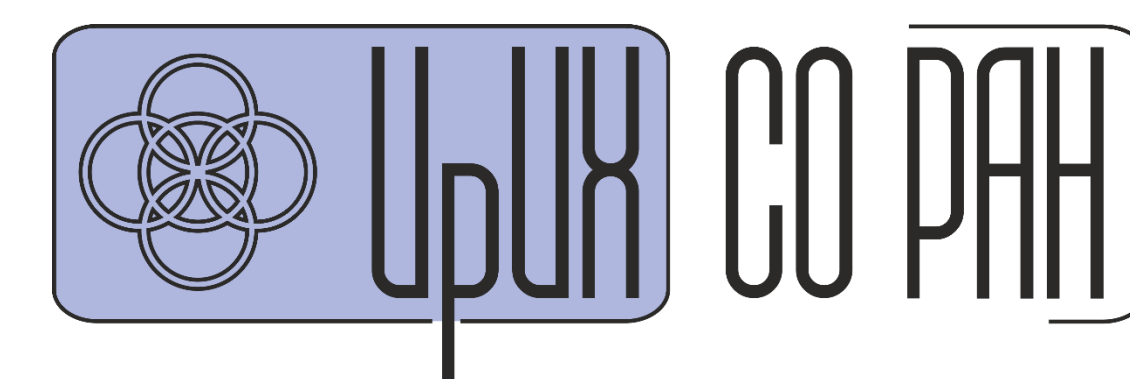


# Polysaccharide macromolecules as transport matrices of nano-size compositions, candidates for diagnostics, therapy and theranostics of cancer diseases

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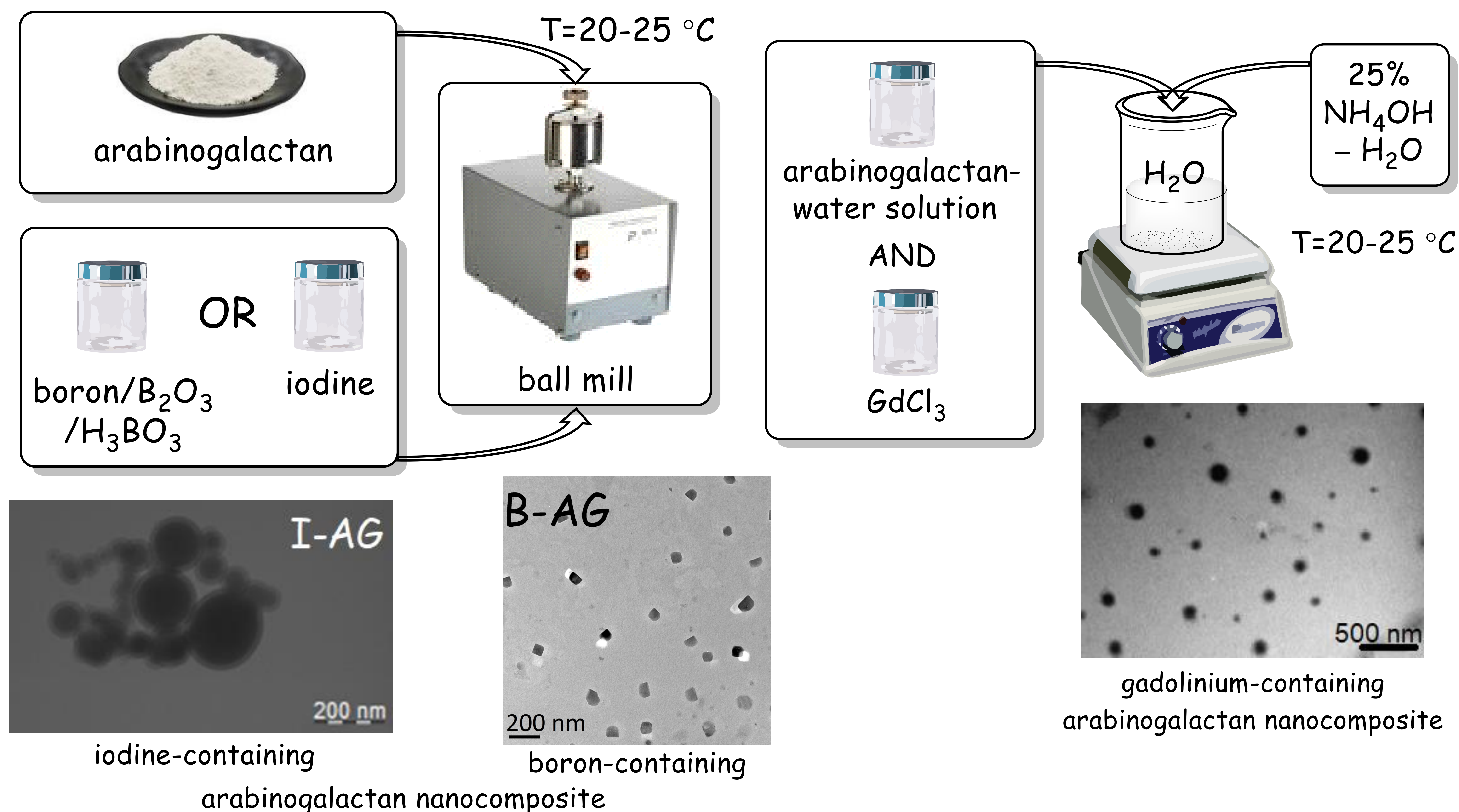
Today, one of the most prospective ways to overcome the blood-brain barrier today is the application of nano-sized particles with a certain diameter [1], namely, 3-10 nm. Unfortunately, most of similar compounds, which can be considered as candidates for the diagnostics and therapy of malignant neoplasms, do not possess high solubility in water and colloidal stability, and the synthesis of such particles is rather sophisticated. On the other hand, it is known that such molecules as arabinogalactan (AG) of Siberian larch can both penetrate the brain through the blood-brain barrier and act as a polymer matrix transporting metal nanoparticles into the brain as well as stabilize these particles [2].

Currently, cancer is one of the leading causes of mortality both in economically developed and underdeveloped countries. Despite the recent advances in cancer therapy, a number of oncological diseases, due to their localization, are still difficult to be timely diagnosed and treated. First of all, these are brain diseases. Blood supply of the brain proceeds through the blood-brain barrier that protects the brain against foreign compounds and objects from the bloodstream. Moreover, the brain cancer is also hard to cure surgically, since operative intervention often leads to the brain dysfunctions.

[1] V. Ceña, P. Játiva, *Nanomedicine (Lond)*. 13 (2018) 1513.

[2] Patent RU 2778928; Patent RU 2795219.

## BASIC APPROACHES



### Conclusion:

The nanocomposites obtained are promising candidates for parallel multichannel diagnostics and therapy of brain cancer

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