Review of: "Synthesis of 1, 2-Disubstituted Benzimidazoles at Ambient Temperature Catalyzed by 1-Methylimidazolium Tetraflouroborate ([Hmim] BF_4) and Investigating Their Anti-ovarian Cancer Properties Through Molecular Docking Studies and Calculations"

Florian Mulks

Potential competing interests: No potential competing interests to declare.

Dehghani, Delshad, Ahmadpour, and Ghezelsofloo describe benzimidazole syntheses and their investigation as anti-ovarian cancer drugs. Synthetic endeavours were performed and documented well. Benzimidazoles are, of course, useful bulk chemicals, and new and improved syntheses are of interest. Their procedure compares well to established efficient methods while utilising affordable and eco-friendly ionic liquid catalysts and aqueous/alcoholic solvent mixtures. I am not sure about the value of a docking study without experimental validation.

Considering that a large part of this work regards the synthesis of benzimidazoles, I would suggest an introduction including references to previous work on the utilised reactions. The synthesis contains an obvious condensation and a less obvious reductive amination, which should be discussed briefly, particularly because this paper does not only address organic chemists.

Table 6 delivers a comparison with known synthesis methods. This should be discussed next to the synthetic section of the paper, rather than after docking studies. The best result of this study should also be given in Table 6 to make comparison easy for the reader.

The reported 1H NMR spectra show a major water signal which may arise from the used deuterated DMSO. As no further purity measure is present, however, this cannot be confirmed. Using drying agents in the DMSO would help minimise this issue.

There are some comprehension errors in the text which justify further polishing, e.g., “This procedure suffers from many advantages […]” wherein “suffers” is wrong.