

# Thoughtful Response on “MRI-based Texture Analysis for Preoperative Prediction of *BRAF* V600E Mutation in Papillary Thyroid Carcinoma” [Letter]

Novaria Sari Dewi Panjaitan , Christina Safira Whinie Lestari , Masri Sembiring Maha

Center for Biomedical Research, Research Organization for Health, National Research and Innovation Agency (BRIN), Cibinong Science Center, Cibinong, West Java, Indonesia

Correspondence: Novaria Sari Dewi Panjaitan, Center for Biomedical Research, Research Organization for Health, National Research and Innovation Agency (BRIN), Cibinong Science Center, Jl. Raya Bogor No. 490, Cibinong – Bogor Km. 46, Cibinong, West Java, Indonesia, Email nova014@brin.go.id

## Dear editor

The experimental works performed and recently reported by the group of Zheng et al was read and reviewed thoroughly. The insightful data reported in their study gave the readers novel thoughts and information regarding how to utilize MRI for the texture analysis of papillary thyroid carcinoma accompanied by the prediction of *BRAF* gene mutation which is debatable. Here, a few thoughtful responses are given in order to improve the designs of future studies and communication in sciences.

The mutation in the *BRAF* gene was harbored frequently in various cancer cells including the endocrine malignancy such as thyroid carcinoma.<sup>1,2</sup> Clinical examination such as magnetic resonance imaging (MRI) has been found to be helpful and useful clinically for detecting the structure abnormalities in certain diseases, such as schizophrenia, the chronic brain disorder.<sup>3</sup> In addition, MRI has been developed and utilized for the texture analysis in discrimination of tumors in patients diagnosed with medulloblastoma.<sup>4</sup> In the work reported by Zheng et al, an MRI-based texture feature model was utilized to provide a new approach for noninvasive and preoperative identification of *BRAF* V600E mutation and to find the mutation location in the tissue.<sup>5</sup> This strategy is indeed a needed novel technology in the clinical field used for diagnostic approach as well as the treatment strategy. However, some insightful questions regarding the correlation between MRI-based texture analysis and gene mutation in carcinoma tissue are addressed here for being taken as insightful input for improving the future studies in this particular field.

It was clearly stated and done in the experimental works of Zheng et al, that the *BRAF* gene mutation was confirmed by sequencing which was performed before MRI-based texture analysis. The inclusion criteria of the samples used in this study regarding the detection of *BRAF* V600E mutation detected by AB Diagnostic kit, which is based on the amplification-resisted mutation system (ARMS) real-time polymerase chain reaction (PCR) technology, then confirmed by sequencing was questionable. In this study, the samples used were originally grouped based on their characteristics, *BRAF* V600E mutant (72.5%) and wild-type (27.5%). The question addressed here is regarding the conclusion taken in the study. It was mentioned that MRI-based texture analysis could be a potential method for predicting *BRAF* V600E mutation in PTC preoperatively in the conclusion section. However, based on the data, the mutation in the *BRAF* gene was clearly not predicted by MRI. Nevertheless, we do agree that the relationship of MRI-structure-based analysis and *BRAF* V600E mutation was likely worth studying even further in order to improve the potential pretreatment medication needed detected by MRI-based prediction in patients with cancer or carcinoma such as PTC.<sup>6,7</sup>

## Acknowledgments

All authors would like to acknowledge the authors of the commented article, Zheng et al for their beautiful work and report in the *Journal of Multidisciplinary Healthcare*. In addition, many thanks should be conveyed to Dr Sunarno and researchers in the Center for Biomedical Researches in BRIN for their support to author.

## Author Contributions

NSDP read and reviewed the article of Zheng et al and the cited publications. CSWL and MSM helped in reviewing the cited publications. NSDP, CSWL and MSM discussed the issue written in this letter. Thereafter, NSDP conceived the critical design of the letter. NSDP wrote the whole letter draft. CSWL and MSM read the draft and gave necessary revisions. Lastly, NSDP revised the manuscript accordingly. Novaria Sari Dewi Panjaitan is the main contributor and corresponding author.

## Disclosure

There is no conflict of interest regarding the communication.

## References

1. Tounsi GH, Traina H, Ben AI, et al. BRAF V600E and novel somatic mutations in thyroid cancer of Libyan patients. *Asian Pac J Cancer Prev*. 2022;23(12):4029–4037. doi:10.31557/APJCP.2022.23.12.4029
2. Attia AS, Hussein M, Issa PP, et al. Association of BRAFV600E mutation with the aggressive behavior of papillary thyroid microcarcinoma: a meta-analysis of 33 studies. *Int J Mol Sci*. 2022;23(24):15626. doi:10.3390/ijms232415626
3. Shen C, Tsai S, Lin C, Yang AC. Progressive brain abnormalities in schizophrenia across different illness periods: a structural and functional MRI study. *Schizophrenia*. 2023;1–9. doi:10.1038/s41537-022-00328-7
4. Zhang Y, Chen C, Tian Z, Feng R, Cheng Y, Xu J. The diagnostic value of MRI-based texture analysis in discrimination of tumors located in posterior fossa: a preliminary study. *Front Neurosci*. 2019;13:1–10. doi:10.3389/fnins.2019.01113
5. Zheng T, Hu W, Wang H, et al. MRI-based texture analysis for preoperative prediction of BRAF V600E mutation in papillary thyroid carcinoma. *J Multidiscip Healthc*. 2023;16:1–10. doi:10.2147/JMDH.S393993
6. Granzier RWY, Ibrahim A, Primakov SP, et al. MRI-based radiomics analysis for the pretreatment prediction of pathologic complete tumor response to neoadjuvant systemic therapy in breast cancer patients: a multicenter study. *Cancers*. 2021;13(10):2447. doi:10.3390/cancers13102447
7. Shantanam M. Breast cancer subtype intertumor heterogeneity: MRI-based features predict results of a genomic assay. *Physiol Behav*. 2018;176(1):139–148. doi:10.1002/jmri.24890.Breast

Dove Medical Press encourages responsible, free and frank academic debate. The content of the Journal of Multidisciplinary Healthcare 'letters to the editor' section does not necessarily represent the views of Dove Medical Press, its officers, agents, employees, related entities or the Journal of Multidisciplinary Healthcare editors. While all reasonable steps have been taken to confirm the content of each letter, Dove Medical Press accepts no liability in respect of the content of any letter, nor is it responsible for the content and accuracy of any letter to the editor.

Journal of Multidisciplinary Healthcare

Dovepress

Publish your work in this journal

The Journal of Multidisciplinary Healthcare is an international, peer-reviewed open-access journal that aims to represent and publish research in healthcare areas delivered by practitioners of different disciplines. This includes studies and reviews conducted by multidisciplinary teams as well as research which evaluates the results or conduct of such teams or healthcare processes in general. The journal covers a very wide range of areas and welcomes submissions from practitioners at all levels, from all over the world. The manuscript management system is completely online and includes a very quick and fair peer-review system. Visit <http://www.dovepress.com/testimonials.php> to read real quotes from published authors.

Submit your manuscript here: <https://www.dovepress.com/journal-of-inflammation-research-journal>

<https://doi.org/10.2147/JMDH.S405040>