



## Frequency of *TERT* Promoter Mutations in Real-World Analysis of 2,092 Thyroid Carcinoma Patients (*Endocrinol Metab* 2022;37:652-63, Heera Yang et al.)

Hyunju Park, Jae Hoon Chung

Division of Endocrinology and Metabolism, Department of Medicine, Thyroid Center, Samsung Medical Center, Sungkyunkwan University School of Medicine, Seoul, Korea

We would like to thank Dr. Kim and colleagues for carefully reading our article and providing thoughtful comments regarding our recent publication, titled “Frequency of *TERT* promoter mutations in real-world analysis of 2,092 thyroid carcinoma patients” [1]. We reported that the frequency of real-world telomerase reverse transcriptase (*TERT*) promoter mutations in thyroid carcinoma was lower (3.4%) than in a previous report [2], and it was particularly low in papillary thyroid carcinoma (PTC)  $\leq 1$  cm (0.5%).

Previous studies have reported that *TERT* promoter mutations were significantly associated with poor prognoses, such as tumor aggressiveness, early recurrence, and cancer-specific death [3]. However, the real-world frequency of *TERT* promoter mutations was unclear before Kim et al. [4] first reported it in Korea in 2020. Furthermore, in a letter to the editor, Kim et al. [4] provided data from a meta-analysis, which constituted valuable findings that could help us understand *TERT* promoter mutations more precisely.

According to the meta-analysis data, the frequency of *TERT* promoter mutation in a prospective cohort in Korea was lower than expected (2.6% in all PTCs, 1.3% in PTCs  $\leq 1.0$  cm, and 5.6% in PTCs  $> 1.0$  cm). Although the real-world frequency was low, the clinicopathological characteristics associated with

*TERT* promoter mutations, such as older age, larger size, and tumor aggressiveness, were consistent with the previous report [3]. We appreciate Kim et al. for providing interesting data.

Kim et al. [5] also pointed out that the role of *TERT* promoter mutations in PTCs  $\leq 1$  cm is unclear. We previously reported that *TERT* promoter mutations can be a molecular prognostic marker in thyroid carcinoma, but we agree that this may not be the case in PTCs  $\leq 1$  cm. Future studies with long-term follow-up would be needed to provide solid evidence.

We deeply appreciate the valuable comments of Dr. Kim and colleagues and their work that enriched the findings of our research.

### CONFLICTS OF INTEREST

No potential conflict of interest relevant to this article was reported.

### ORCID

Hyunju Park <https://orcid.org/0000-0002-6010-5539>

Jae Hoon Chung <https://orcid.org/0000-0002-9563-5046>

Received: 10 October 2022, Accepted: 17 October 2022

**Corresponding author:** Jae Hoon Chung

Division of Endocrinology and Metabolism, Department of Medicine, Thyroid Center, Samsung Medical Center, Sungkyunkwan University School of Medicine, 81 Irwon-ro, Gangnam-gu, Seoul 06351, Korea

Tel: +82-2-3410-3434, Fax: +82-2-3410-3849, E-mail: thyroid@skku.edu

Copyright © 2022 Korean Endocrine Society

This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<https://creativecommons.org/licenses/by-nc/4.0/>) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

**REFERENCES**

1. Yang H, Park H, Ryu HJ, Heo J, Kim JS, Oh YL, et al. Frequency of TERT promoter mutations in real-world analysis of 2,092 thyroid carcinoma patients. *Endocrinol Metab (Seoul)* 2022;37:652-63.
2. Yang J, Gong Y, Yan S, Chen H, Qin S, Gong R. Association between TERT promoter mutations and clinical behaviors in differentiated thyroid carcinoma: a systematic review and meta-analysis. *Endocrine* 2020;67:44-57.
3. Kim TH, Kim YE, Ahn S, Kim JY, Ki CS, Oh YL, et al. TERT promoter mutations and long-term survival in patients with thyroid cancer. *Endocr Relat Cancer* 2016;23:813-23.
4. Kim SY, Kim T, Kim K, Bae JS, Kim JS, Jung CK. Highly prevalent BRAF V600E and low-frequency TERT promoter mutations underlie papillary thyroid carcinoma in Koreans. *J Pathol Transl Med* 2020;54:310-7.
5. Kim TH, Ki CS, Kim HS, Kim K, Choe JH, Kim JH, et al. Refining dynamic risk stratification and prognostic groups for differentiated thyroid cancer with TERT promoter mutations. *J Clin Endocrinol Metab* 2017;102:1757-64.