

AB007. Expression of trophoblastic antigen 2 (Trop2) in thymic epithelial tumors

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Background: Trophoblastic antigen 2 (Trop2) is a cell surface glycoprotein expressed in multiple types of cancers, including breast cancer, non-small cell lung cancer, and gastrointestinal cancers¹. Therapeutic intervention targeting Trop2-expressing tumors is an active area of investigation. Trop2 expression and the use of Trop2-directed therapy such as antibody-drug conjugate (ADC) have not yet been investigated in thymic epithelial tumors (TETs).

Methods: Patients with TETs treated at MedStar Georgetown University Hospital between 2011–2021 were retrospectively identified. Of the patients for whom tumor samples were available, immunohistochemistry (IHC) membranous staining for Trop2 was performed using SP295 rabbit IgG anti-human Trop2 (Abcam, Waltham, MA, USA). When available, IHC staining for Trop2 was performed on normal thymus tissue from the same patients. Positivity required at least 10% of the tumor cells to be stained, with an intensity scored of 1+ (weak), 2+ (moderate), and 3+ (strong).³ Medical records of the included patients were reviewed to identify clinical characteristics including age, sex, stage of disease, and WHO subtype.

Results: Thirty TET samples from 29 patients (17 patients with thymoma and 12 patients with thymic carcinoma) were identified. One patient with thymic carcinoma had two samples from different time points. From the same set of patients, 15 samples of normal thymus tissue were available.

In the normal thymus tissue, 10 samples (67%) showed no positivity of Trop2, while the remaining 5 samples (33%) showed only 1+ IHC staining. In the thymoma samples, 4 (24%) showed 0 or 1+ IHC staining, while 13 (76%) showed 2+ or 3+ staining. Of the 12 thymic carcinoma samples, all exhibited Trop2 expression; three samples (23%) showed 1+ IHC staining while 8 (62%) showed 2+ staining and 2 (15%) showed 3+ staining.

Conclusions: Trop2 is readily expressed in both thymomas and thymic carcinomas with a higher degree of expression in thymic carcinoma. The expression of Trop-2 was lower in normal thymic tissue compared with TETs. The increased expression of Trop-2 in TETs suggests that Trop2 is an attractive therapeutic target for Trop-2 directed therapy.

Keywords: Trophoblastic antigen 2 (Trop2); immunohistochemistry (IHC); thymoma; thymic carcinoma

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Footnote

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Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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