

# Antibodies to Tumor Endothelial Marker 8

## Summary

Cancer treatment has evolved to include targeted therapies, or therapies that identify and act on specific molecules that contribute to the growth and spread of cancer. Though several targeted cancer therapies exist today, additional research and development is still needed in this space. Tumor markers, or biomarkers, can help drive the development of new anti-cancer drugs and diagnostics. This technology involves one such marker known as Tumor Endothelial Marker 8 (TEM8), and a new anti-TEM8 antibody, called cAF334.

## Key Investigator

Jung-Hee Woo, PhD

## Field

Oncology

## Technology

Antibodies to Tumor  
Endothelial Marker 8

## Key Features

- Specific tumor vascular targeting
- Internalized antibody
- Cytotoxic antibody drug conjugate with anti-tumor activity
- Humanized antibody

## Stage of Development

Preclinical

## Status

Available for licensing

## Patent Status

US Patent 9,309,322,  
Divisional Application  
US2016/0319016  
Patent pending:  
EP 2637692

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## Market

Tumor markers are substances produced by tumors or other cells in response to cancer. These markers can be found in blood, urine, tumor tissue, or other areas of the body. As such, tumor markers are useful for the diagnosis and treatment of certain cancer types.

Tumor Endothelial Marker 8 (TEM8) is a cell surface receptor found on tumor-associated blood vessels and is important for tumor blood vessel migration. Tumor blood vessels have become a major target of anti-cancer therapy due to their role in promoting tumor growth via angiogenesis. Studies have shown that TEM8 is overexpressed in the blood vessels of a variety of human solid tumor types in addition to colorectal cancer.

Unlike current vascular-targeted therapies, TEM8 appears to be selectively overexpressed in tumor-associated host vasculature only during pathological conditions. Thus, the selective targeting of TEM8 may result in fewer off-target side effects compared with current anti-angiogenic agents in clinical use.

## Technology

This invention concerns a particular antibody for use in the detection, prevention, and treatment of diseases and disorders associated with abnormal angiogenesis. The new anti-TEM8 antibody cAF334 is able to recognize all forms of TEM8 on the surface of live cells in its native and cell-surface expressed form. Studies show cAF334 is internalized after binding to TEM8 on the cell surface making it a promising carrier to deliver cytotoxic chemo drugs.

Further, when the cAF334 antibody was conjugated to a cytotoxic drug, monomethyl auristatin ester (MMAE), it yielded a cytotoxic antibody drug conjugate, cAF334-MMAE, which was been developed for improved anti-tumor activity. In vitro and in vivo studies of cAF334-MMAE have shown anti-tumor activity against TEM8 positive tumor cell lines exemplifying it as a potential tool for TEM8-based therapeutic targeting. Currently, work is being conducted to humanize and optimize cAF334.

## Publications:

Yang, Mi Young, et al. "The cell surface structure of tumor endothelial marker 8 (TEM8) is regulated by the actin cytoskeleton." *Biochimica et Biophysica Acta (BBA)-Molecular Cell Research* 1813.1 (2011)

E Frankel, Arthur, et al. "TEM8 Targeted Cancer Therapy." *Anti-Cancer Agents in Medicinal Chemistry (Formerly Current Medicinal Chemistry-Anti-Cancer Agents)* 11.10 (2011)