# CLEC 14A Antibody

| | | | |
|---|---|---|---|
| **Therapeutic Area** | Oncology | **Indications** | Solid Tumor |
| **Modality** | Antibody Conjugated | **Development Stage** | Hit to Lead/Lead Optimization |

## Overview

### Background

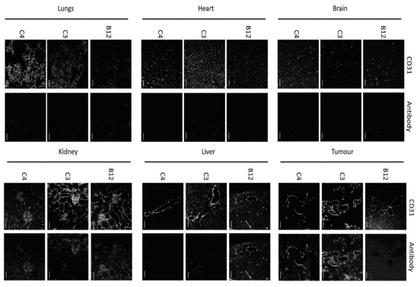
- The expression of Tumour Endothelial Markers (TEMs) is significantly higher in the blood vessels of human tumors compared to normal tissues, suggesting potential for therapy. CLEC14A, a newly discovered TEM, is a protein found on the surface of tumor blood vessel cells but is limited in healthy and non-cancerous diseased tissues. This specific overexpression of CLEC14A in tumor blood vessels has been confirmed through various immunohistochemical studies across different tumor types.

### Technology Advantages

- CLEC14A is a C-type lectin transmembrane protein expressed on the surface of tumour endothelial cells but not on normal cells
- Whilst angiogenesis-targeting agents block tumour neo-angiogenesis, ADCs against CLEC14A disrupt already established tumour vasculature
- CLEC14A ADCs show reduced tumour vascularisation in a murine model of Lewis lung carcinoma, correlating with reduced tumour burden

## Key Data

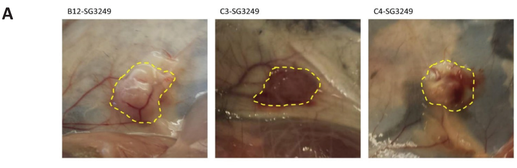
### ANTIBODIES AGAINST CLEC14A LOCALISE MAINLY TO TUMOUR VESSELS IN TUMOUR-BEARING MICE




- To characterise CLEC14A antibody distribution in vivo, CRT3 (C3), CRT4 (C4) or B12 (control) antibodies were administered intravenously to tumourbearing C57BL6 mice. Mice were culled after 90 minutes and tissues were harvested and immunostained to visualise antibody localisation.
- Images show Clec14A ("Antibody") and CD31 (a vascular marker) staining.
- Antibodies C3 and C4 showed strong staining within tumour sections and showed no staining in key organs (lungs, heart, brain, liver) and low staining in the kidney, a known major route for antibody clearance.

Scale bar = 10 µm.

### ANTI-CLEC14A ADCs REDUCE VASCULARISATION AND TUMOUR BURDEN




(A) C57BL6 mice with Lewis lung carcinoma were treated with 1mg/kg of C3-SG3249, C4-SG3249 or B12-SG3249 (control) and culled after 24 hours. Leakage of blood into surrounding tissues was observed with C3-SG3249 and C4-SG3249 treatment, indicating vascular damage. Yellow dashes delineate tumour boundaries.
(B) Endpoint weights of Lewis lung carcinoma tumours in C57BL6 mice after two weekly treatments with C4-SG3249 or B12-SG3249. n=5.
Mice showed no adverse effects after administration of ADCs, and histopathology showed no change in healthy tissues.

## IP Status & Publication(s)

### Intellectual Property

| Patent Number | Patent Family |
|---|---|
| US 9255148 B2 (2016.02.09) | PCT, US, EP, JP, CA, AU, HU |
| US 10808031 B2 (2020.10.20) | PCT, US, EP, JP, CA, AU |
| US 11566075 B2 (2023.01.31) | PCT, US, EP, JP, CN, CA, AU |

### Publication(s)


- Zhuang, X. et al. (2020). CAR T cells targeting tumor endothelial marker CLEC14A inhibit tumor growth. JCI Insight, 5(19).
- Robinson, J. A. et al. (2020). An evaluation of the tumour endothelial marker CLEC14A as a therapeutic target in solid tumours. The Journal of Pathology, 6(4), 308–319.\
- Mura, M. et al. (2011). Identification and angiogenic role of the novel tumor endothelial marker CLEC14A. Oncogene, 31(3), 293–305.