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(54) Title: ANTI-LAMP1 ANTIBODIES AND ANTIBODY DRUG CONJUGATES, AND USES THEREOF

(57) Abstract: Antibodies are provided which specifically bind human and *Macaca fascicularis* lysosomal-associated membrane protein 1 (LAMP1) proteins and immunoconjugates comprising said antibodies conjugated or linked to a growth inhibitory agent. Pharmaceutical compositions comprising antibodies or immunoconjugates of the invention and use of the antibodies or immunoconjugates for the treatment of cancer are also provided, as well as LAMP1 antibodies, isolated nucleic acids, vectors and host cells comprising a sequence encoding said antibodies and the use of said antibody as a diagnostic tool. The application further provides for the detection of LAMP1 gene amplification or gain in cancer cells leading to the determination if patients with cancer are likely to respond to anti-LAMP1 therapy. Therefore, it is proposed an in vitro method of selecting patients with cancer which comprises determining, in a biological sample of a patient with cancer which includes cancer cells, if said patient harbors a LAMP1 gene copy number gain; and selecting the patient based on the presence of LAMP1 gene copy number gain. Anti-LAMP1 therapeutic agent for use for treating cancer in a patient harboring LAMP1 gene copy number gain in cancer cells is further provided.

