# A novel self-lipid antigen targets human T cells against CD1c(+) leukemias



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**Author(s)** Lepore, Marco; de Lalla, Claudia; Gundimeda, S. Ramanjaneyulu; Gsellinger, Heiko; Consonni, Michela; Garavaglia, Claudio; Sansano, Sebastiano; Piccolo, Francesco; Scelfo, Andrea; Häussinger, Daniel; Montagna, Daniela; Locatelli, Franco; Bonini, Chiara; Bondanza, Attilio; Forcina, Alessandra; Li, Zhiyuan; Ni, Guanghui; Ciceri, Fabio; Jenö, Paul; Xia, Chengfeng; Mori, Lucia; Dellabona, Paolo; Casorati, Giulia; De Libero, Gennaro
**Author(s) at UniBasel** De Libero, Gennaro ; Häussinger, Daniel ; Jenö, Paul ;
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T cells that recognize self-lipids presented by CD1c are frequent in the peripheral blood of healthy individuals and kill transformed hematopoietic cells, but little is known about their antigen specificity and potential antileukemia effects. We report that CD1c self-reactive T cells recognize a novel class of self-lipids, identified as methyl-lysophosphatidic acids (mLPAs), which are accumulated in leukemia cells. Primary acute myeloid and B cell acute leukemia blasts express CD1 molecules. mLPA-specific T cells efficiently kill CD1c(+) acute leukemia cells, poorly recognize nontransformed CD1c-expressing cells, and protect immunodeficient mice against CD1c(+) human leukemia cells. The identification of immunogenic self-lipid antigens accumulated in leukemia cells and the observed leukemia control by lipid-specific T cells in vivo provide a new conceptual framework for leukemia immune surveillance and possible immunotherapy.

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