

Publication**A high-mobility, low-cost phenotype defines human effector-memory CD8+ T cells****JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)****ID** 155701**Author(s)** Zenhausem, G.; Gubser, P.; Eisele, P.; Gasser, O.; Steinhuber, A.; Trampuz, A.; Handschin, C.; Luster, A. D.; Hess, C.**Author(s) at UniBasel** [Handschin, Christoph](#) ;**Year** 2009**Title** A high-mobility, low-cost phenotype defines human effector-memory CD8+ T cells**Journal** Blood**Volume** 113**Number** 1**Pages / Article-Number** 95-99

T cells move randomly ("random-walk"), a characteristic thought to be integral to their function. Using migration assays and time-lapse microscopy, we found that CD8+ T cells lacking the lymph node homing receptors CCR7 and CD62L migrate more efficiently in transwell assays, and that these same cells are characterized by a high frequency of cells exhibiting random crawling activity under culture conditions mimicking the interstitial/extravascular milieu, but not when examined on endothelial cells. To assess the energy efficiency of cells crawling at a high frequency, we measured mRNA expression of genes key to mitochondrial energy metabolism (peroxisome proliferator-activated receptor gamma coactivator 1beta [PGC-1beta], estrogen-related receptor alpha [ERRalpha], cytochrome C, ATP synthase, and the uncoupling proteins [UCPs] UCP-2 and -3), quantified ATP contents, and performed calorimetric analyses. Together these assays indicated a high energy efficiency of the high crawling frequency CD8+ T-cell population, and identified differentially regulated heat production among nonlymphoid versus lymphoid homing CD8+ T cells.

Publisher American Society of Hematology**ISSN/ISBN** 0006-4971 ; 1528-0020**edoc-URL** <http://edoc.unibas.ch/dok/A5258707>**Full Text on edoc** Available;**Digital Object Identifier DOI** 10.1182/blood-2008-04-153262**ISI-Number** WOS:000262162800016**Document type (ISI)** Article