

# DOCK2 couples with LEF-1 to regulate B cell metabolism and memory response

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Dedicator of cytokinesis 2 (DOCK2) is essential for the B cell differentiation, BCR signaling and humoral immune response. However, the role of DOCK2 in the memory response of B cell is unknown. By using two DOCK2 deficient patients, we found that the memory B cells were decreased and the early activation of DOCK2 deficient memory B cells was abolished to the degree of naïve B cells due to the decreased expression of CD19 and CD21 mechanistically. Interestingly the expression of LEF-1, a negative regulator of CD21, was increased in DOCK2 deficient B cells. This was linked to the increased expression of HIF-1 $\alpha$  and cell metabolism, which in turn affected the ER structure. Finally, the reduction of memory B cells in DOCK2 patients was due to the

increased apoptosis, which might be related with the increased metabolism. © 2020

B cell

DOCK2

LEF-1

B lymphocyte receptor

CD19 antigen

complement component C3d receptor

dedicator of cytokinesis 2

hypoxia inducible factor 1alpha

lymphoid enhancer factor 1

Rac protein

unclassified drug

animal cell

Article

B lymphocyte activation

B lymphocyte differentiation

cell metabolism

clinical article

controlled study

female

human

human cell

male

memory cell

mouse

nonhuman

priority journal