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Title:	Arf-like GTPase Arl8b regulates lytic granule polarization and natural killer cell-mediated cytotoxicity
Authors:	Sharma, Mahak (/jspui/browse?type=author&value=Sharma%2C+Mahak)
Keywords:	Organelles Natural killer (NK) Lymphocytes lysosome-related
Issue Date:	2013
Publisher:	SSPA
Citation:	Molecular Biology of the Cell, 24(23), pp. 3721-3735.
Abstract:	Natural killer (NK) lymphocytes contain lysosome-related organelles (LROs), known as lytic granules, which upon formation of immune synapse with the target cell, polarize toward the immune synapse to deliver their contents to the target cell membrane. Here, we identify a small GTP-binding protein, ADP-ribosylation factor-like 8b (Arl8b), as a critical factor required for NK cell-mediated cytotoxicity. Our findings indicate that Arl8b drives the polarization of lytic granules and microtubule-organizing centers (MTOCs) toward the immune synapse between effector NK lymphocytes and target cells. Using a glutathione S-transferase pull-down approach, we identify kinesin family member 5B (KIF5B; the heavy chain of kinesin-1) as an interaction partner of Arl8b from NK cell lysates. Previous studies showed that interaction between kinesin-1 and Arl8b is mediated by SifA and kinesin-interacting protein (SKIP) and the tripartite complex drives the anterograde movement of lysosomes. Silencing of both KIF5B and SKIP in NK cells, similar to Arl8b, led to failure of MTOC-lytic granule polarization to the immune synapse, suggesting that Arl8b and kinesin-1 together control this critical step in NK cell cytotoxicity.
Description:	Only IISERM authors are available in the record.
URI:	<a href="https://www.molbiolcell.org/doi/10.1091/mbc.e13-05-0259">https://www.molbiolcell.org/doi/10.1091/mbc.e13-05-0259</a> ( <a href="https://www.molbiolcell.org/doi/10.1091/mbc.e13-05-0259">https://www.molbiolcell.org/doi/10.1091/mbc.e13-05-0259</a> ) <a href="http://hdl.handle.net/123456789/2741">http://hdl.handle.net/123456789/2741</a> ( <a href="http://hdl.handle.net/123456789/2741">http://hdl.handle.net/123456789/2741</a> )
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