



Caveolin-1 is required for fatty acid translocase (FAT/CD36) localization and function at the plasma membrane of mouse embryonic fibroblasts.

Submitted by Soazig Le Lay on Tue, 01/27/2015 - 10:38

Titre	Caveolin-1 is required for fatty acid translocase (FAT/CD36) localization and function at the plasma membrane of mouse embryonic fibroblasts.
Type de publication	Article de revue
Auteur	Ring, Axel [1], Le Lay, Soazig [2], Pohl, Juergen [3], Verkade, Paul [4], Stremmel, Wolfgang [5]
Editeur	Elsevier
Type	Article scientifique dans une revue à comité de lecture
Année	2006
Langue	Anglais
Date	2006 Apr
Numéro	4
Pagination	416-23
Volume	1761
Titre de la revue	Biochimica et Biophysica Acta
ISSN	0006-3002
Mots-clés	Animals [6], Antigens, CD36 [7], Caveolae [8], Caveolin 1 [9], Cell Membrane [10], Cells, Cultured [11], Fatty Acids [12], fibroblasts [13], Mice [14], Mice, Knockout [15], Oleic Acids [16], Subcellular Fractions [17], Succinimides [18]
Résumé en anglais	<p>Several lines of evidence suggest that lipid rafts are involved in cellular fatty acid uptake and influence fatty acid translocase (FAT/CD36) function. However, it remains unknown whether caveolae, a specialized raft type, are required for this mechanism. Here, we show that wild-type (WT) mouse embryonic fibroblasts (MEFs) and caveolin-1 knockout (KO) MEFs, which are devoid of caveolae, have comparable overall expression of FAT/CD36 protein but altered subcellular FAT/CD36 localization and function. In WT MEFs, FAT/CD36 was isolated with both lipid raft enriched detergent-resistant membranes (DRMs) and detergent-soluble membranes (DSMs), whereas in cav-1 KO cells it was exclusively associated with DSMs. Subcellular fractionation demonstrated that FAT/CD36 in WT MEFs was localized intracellularly and at the plasma membrane level while in cav-1 KO MEFs it was absent from the plasma membrane. This mistargeting of FAT/CD36 in cav-1 KO cells resulted in reduced fatty acid uptake compared to WT controls. Adenoviral expression of caveolin-1 in KO MEFs induced caveolae formation, redirection of FAT/CD36 to the plasma membrane and rescue of fatty acid uptake. In conclusion, our data provide evidence that caveolin-1 is necessary to target FAT/CD36 to the plasma membrane. Caveolin-1 may influence fatty acid uptake by regulating surface availability of FAT/CD36.</p>
URL de la notice	http://okina.univ-angers.fr/publications/ua7125 [19]

DOI 10.1016/j.bbaliip.2006.03.016 [20]
Lien vers le document <http://dx.doi.org/10.1016/j.bbaliip.2006.03.016> [20]
Autre titre Biochim. Biophys. Acta
Identifiant (ID) PubMed 16702023 [21]

Liens

- [1] [http://okina.univ-angers.fr/publications?f\[author\]=10868](http://okina.univ-angers.fr/publications?f[author]=10868)
- [2] <http://okina.univ-angers.fr/soazig.lelay/publications>
- [3] [http://okina.univ-angers.fr/publications?f\[author\]=10869](http://okina.univ-angers.fr/publications?f[author]=10869)
- [4] [http://okina.univ-angers.fr/publications?f\[author\]=10870](http://okina.univ-angers.fr/publications?f[author]=10870)
- [5] [http://okina.univ-angers.fr/publications?f\[author\]=10871](http://okina.univ-angers.fr/publications?f[author]=10871)
- [6] [http://okina.univ-angers.fr/publications?f\[keyword\]=964](http://okina.univ-angers.fr/publications?f[keyword]=964)
- [7] [http://okina.univ-angers.fr/publications?f\[keyword\]=10988](http://okina.univ-angers.fr/publications?f[keyword]=10988)
- [8] [http://okina.univ-angers.fr/publications?f\[keyword\]=1149](http://okina.univ-angers.fr/publications?f[keyword]=1149)
- [9] [http://okina.univ-angers.fr/publications?f\[keyword\]=6013](http://okina.univ-angers.fr/publications?f[keyword]=6013)
- [10] [http://okina.univ-angers.fr/publications?f\[keyword\]=10939](http://okina.univ-angers.fr/publications?f[keyword]=10939)
- [11] [http://okina.univ-angers.fr/publications?f\[keyword\]=1428](http://okina.univ-angers.fr/publications?f[keyword]=1428)
- [12] [http://okina.univ-angers.fr/publications?f\[keyword\]=6193](http://okina.univ-angers.fr/publications?f[keyword]=6193)
- [13] [http://okina.univ-angers.fr/publications?f\[keyword\]=1143](http://okina.univ-angers.fr/publications?f[keyword]=1143)
- [14] [http://okina.univ-angers.fr/publications?f\[keyword\]=1102](http://okina.univ-angers.fr/publications?f[keyword]=1102)
- [15] [http://okina.univ-angers.fr/publications?f\[keyword\]=1147](http://okina.univ-angers.fr/publications?f[keyword]=1147)
- [16] [http://okina.univ-angers.fr/publications?f\[keyword\]=10989](http://okina.univ-angers.fr/publications?f[keyword]=10989)
- [17] [http://okina.univ-angers.fr/publications?f\[keyword\]=10990](http://okina.univ-angers.fr/publications?f[keyword]=10990)
- [18] [http://okina.univ-angers.fr/publications?f\[keyword\]=10991](http://okina.univ-angers.fr/publications?f[keyword]=10991)
- [19] <http://okina.univ-angers.fr/publications/ua7125>
- [20] <http://dx.doi.org/10.1016/j.bbaliip.2006.03.016>
- [21] <http://www.ncbi.nlm.nih.gov/pubmed/16702023?dopt=Abstract>

Publié sur *Okina* (<http://okina.univ-angers.fr>)