Tumour targeting of lipid nanocapsules grafted with cRGD peptides.

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Titre	Tumour targeting of lipid nanocapsules grafted with cRGD peptides.
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Auteur	Hirsjärvi, Samuli [1], Belloche, Camille [2], Hindré, François [3], Garcion, Emmanuel [4], Benoît, Jean-Pierre [5]
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Résumé en anglais	Combining targeting to therapy remains a major challenge in cancer treatment. To address this subject, the surface of lipid nanocapsules (LNC) was modified by grafting cRGD peptides, which are known to be recognised by αvβ3 integrins expressed by tumour endothelium and cancer cells. Applicability of this LNC-cRGD in tumour targeting was first assessed in vitro by the use of U87MG glioma cells. Biodistribution and tumour accumulation of radiolabelled LNC-cRGD in vivo were then evaluated in mice bearing the same subcutaneous xenograft. Flow cytometry and confocal microscopy results revealed that the cRGD grafting improved binding and internalisation compared to negative control LNC-cRAD and blank LNC. The peptide-grafted LNC remained in the blood circulation up to 3h with reduced capture by the RES organs. Tumour accumulation of LNC-cRGD with respect to LNC-cRAD was significantly higher at 1-3h. These results show that cRGD grafted to LNC has created a promising tumour-targetable nanocarrier that could be used in cancer treatment.
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Liens

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[2] http://okina.univ-angers.fr/publications?f[author]=5892
[3] http://okina.univ-angers.fr/f.hindre/publications
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[5] http://okina.univ-angers.fr/j.benoit/publications
[6] http://okina.univ-angers.fr/publications/ua6676
[7] http://dx.doi.org/10.1016/j.ejpb.2013.12.006
[8] http://www.ncbi.nlm.nih.gov/pubmed/24361535?dopt=Abstract