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In the news

ESCORTING siRNA

First discovered 10 years ago, small interfering RNAs (siRNAs) provide immense potential as therapeutic tools. So far, however, siRNAs have only been targeted to tumour tissue and liver cells, limiting their usefulness in basic and applied biology. Now, Motomu Shimaoka and colleagues, from Harvard Medical School, have developed a delivery system to target siRNA to haematopoietic cells, as reported in *Science*.

The authors wanted to examine the role of cyclin D1 in inflammation. Specifically, they planned to silence cyclin D1 expression in leukocytes *in vivo* using siRNA. Because leukocytes are distributed throughout the bloodstream, a systemic delivery approach was needed.

Shimaoka and co-workers adapted older delivery systems by coating the outside of bilayer lipid vesicles (liposomes) with hyaluronan, an extracellular matrix molecule with membrane-stabilizing properties, and with an antibody to β7 integrin, which is highly expressed by leukocytes that are involved in intestinal inflammation. An siRNA directed against cyclin D1 was then inserted into the liposomes. When these liposomes were injected into mice, cyclin D1 expression was silenced in leukocytes — demonstrating a crucial role for cyclin D1 in inflammation.

As well as delivering siRNA systemically to a new cell type, these liposomes carried more siRNA than had been carried before, and they were less toxic than existing delivery systems.

Although basic research may benefit most from this study, "the Harvard team have shown at least in principle that therapeutic use of siRNA is not a forlorn hope" says Bernard Mahon, from the National University of Ireland (*Chemistry World*, 31 January 2008). Shimaoka hopes to test this technique in clinical trials "in the near future" (*The Scientist*, 31 January 2008).

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