

PublisherInfo		
PublisherName	:	BioMed Central
PublisherLocation	:	London
PublisherImprintName	:	BioMed Central

Transfection using lasers

ArticleInfo		
ArticleID	:	4539
ArticleDOI	:	10.1186/gb-spotlight-20020725-01
ArticleCitationID	:	spotlight-20020725-01
ArticleSequenceNumber	:	205
ArticleCategory	:	Research news
ArticleFirstPage	:	1
ArticleLastPage	:	2
ArticleHistory	:	RegistrationDate : 2002-7-25 OnlineDate : 2002-7-25
ArticleCopyright	:	BioMed Central Ltd2002
ArticleGrants	:	
ArticleContext	:	130593311

Tudor Toma

Email: t.toma@ic.ac.uk

For successful delivery of foreign DNA into cells *in vitro*, the cell's architecture must remain intact while allowing a high degree of transfection. But current methods give sub-optimal transfection efficiencies. In 18 July [Nature](#), Uday Tirlapur and Karsten König at the [Friedrich Schiller University](#), Jena, Germany, show that a femtosecond pulse laser can efficiently transfect a variety of mammalian cells with DNA (*Nature* 2002, **418**:290-291).

Tirlapur and König used a high-intensity near infrared, femtosecond-pulsed laser beam directed at Chinese hamster ovary and rat-kangaroo kidney epithelial (PtK2) cells. The laser made transient perforations in the cell membrane through which a plasmid DNA vector encoding enhanced green fluorescent protein (eGFP) could enter. Irrespective of cell type, the transfection rate achieved using this technique was invariably 100%.

"The ability to transfer foreign DNA safely and efficiently into specific cell types (including stem cells) - circumventing the need for mechanical, electrical or chemical means - will be an encouraging advance for a range of ventures, including targeted gene therapy and DNA vaccination," suggest the authors.

References

1. Tirlapur UK and König K: Targeted transfection by femtosecond laser. *Nature* 2002, 418:290-291., [<http://www.nature.com>]
2. Friedrich Schiller University, [<http://www.uni-jena.de/>]