INTRODUCTION

MEDITRANS represents a multidisciplinary Integrated Project dealing with targeted nanomedicines. Platform technologies will be developed with broad applicability to disease treatment, as exemplified by the choice for chronic inflammatory disorders (rheumatoid arthritis, Crohn's disease, multiple sclerosis), and cancer as target pathologies. Nanomedicines (based on carrier materials like polymeric and lipidic nanoparticles, nanotubes, and fullerenes) will be endowed with superior targeting and (triggerable) drug release properties. In parallel, MRI imaging probes will be designed that report on the localisation of the targeted nanomedicines, specific biomarkers, the drug release process and therapeutic outcome (imaging-guided drug delivery).

The consortium consists of 30 partners from 9 EU member states (including 1 new member state) and 3 associated states, and includes 13 industrial companies, 11 universities and 6 research institutes. The total budget is €16.1M, with €11M from the EC and €5.1M from MEDITRANS' industrial partners.

VACANCIES

If you would like to work on the MEDITRANS project please see the list of current vacancies on the Vacancies page of the MEDITRANS website. You can send us your details *via* the Contact Us page of the MEDITRANS website.

www.meditrans-ip.net

CONSORTIUM

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Universidad Nacional de Educacion a Distancia
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Candidate consortium member:

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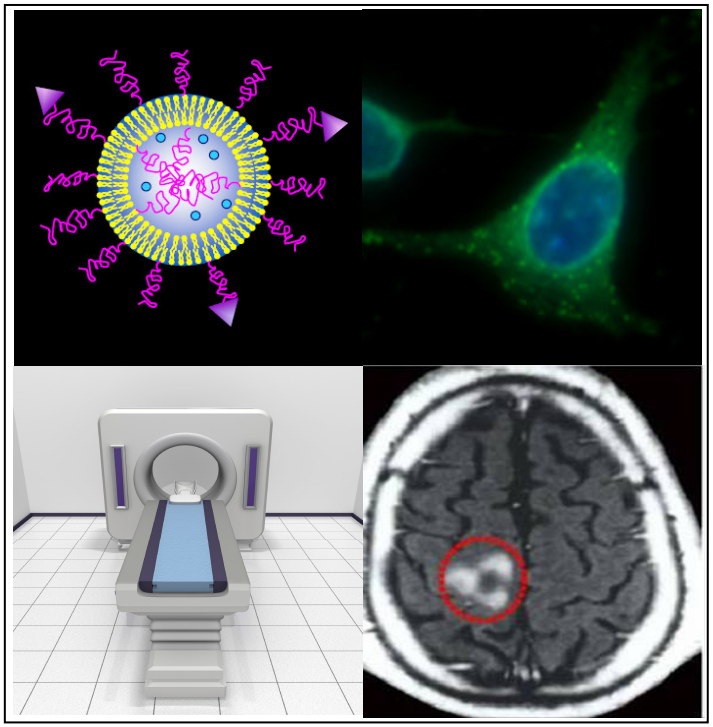
Mr Seymour Kurtz / Dr William Dawson
www.infuturiagroup.com / www.infuturia.eu

Sixth Framework Programme
Funded by the European Commission

MEDITRANS

Targeted Delivery of Nanomedicine



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Contract Number: NMP4-CT-2006-026668

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PROJECT OBJECTIVE

To develop innovative targeted drug / imaging agent delivery, with controlled release and imaging guidance procedures for the detection of the underlying targeting / (triggered) drug release processes.

SPECIFIC CHALLENGES

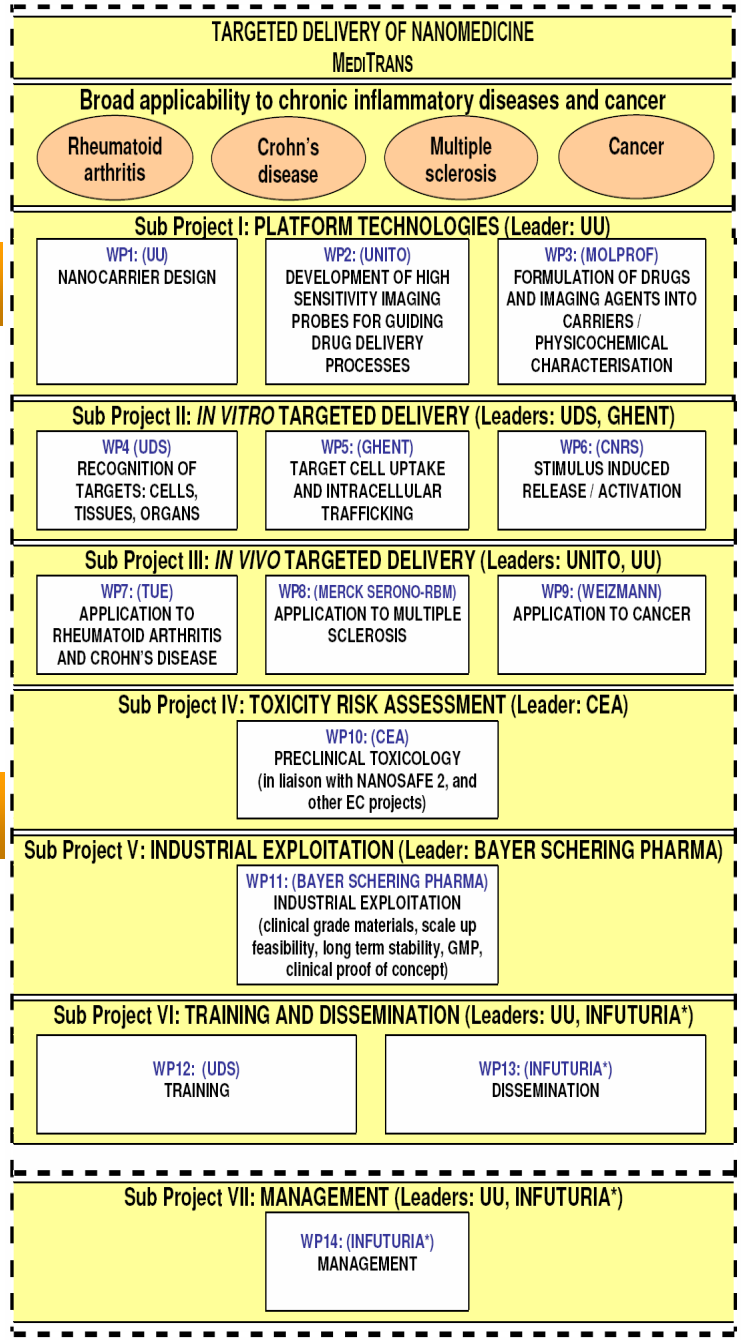
- Promote entry of targeted nanomedicines into industrial exploitation and clinical proof-of-principle studies
- Develop non-invasive imaging procedures for monitoring of targeted drug delivery processes
- Demonstrate potential of emerging materials (*e.g.* fullerenes) for use as drug carrier materials

EXPECTED IMPACT

- Well-characterised targeted nanomedicines with broad applicability to disease treatment (rheumatoid arthritis, Crohn's disease, multiple sclerosis and cancer)
- Improved structural collaboration between industry and academia

Images courtesy of: 1: Dr R. Schiffelers (Utrecht University), **2:** Dr K. Fischer (Bayer Schering Pharma AG), **3:** www.istockphoto.com, **4:** From: Dousset V, Brochet, B, Deloire MSA, Lagoarde L, Barroso B, Caille J-M, Petry KG. MR imaging of relapsing multiple sclerosis patients using ultra-small particle iron oxide and compared to gadolinium. AJNR - Am J NeuroRadiology 2006; 27(5):1000-5., **5:** Prof. Dr C.-M. Lehr (Saarland University)

PROJECT STRUCTURE



* Candidate Consortium Member

WORKPACKAGE OBJECTIVES

WP1: To test Novel Materials, and to optimise Existing Materials, for targeted drug delivery

WP2: To develop novel Imaging Probes endowed with optimal characteristics for guiding drug delivery protocols

WP3: To load selected nanocarriers with biologically active compounds and imaging agents and to study their physicochemical characteristics

WP4: To evaluate and optimise the targeting efficiency of the selected nanomedicines in existing and newly developed *in vitro* models

WP5: To identify and overcome *in vitro* intracellular barriers opposing the efficient delivery of siRNA and pDNA containing nanomedicines

WP6: To optimise the release of the drug / imaging probe payload from the nanocarrier in response to physicochemical characteristics of the biological microenvironment or by using external stimuli ('release on demand')

WPs 7, 8, 9: To study pharmacokinetics, tissue distribution, targeting efficiency, and therapeutic efficacy, in *in vivo* models of rheumatoid arthritis, Crohn's disease, multiple sclerosis and cancer. Development of procedures for MRI-guided monitoring of the drug targeting process *in vivo*

WP10: To assess the toxicological risks of selected prototype nanomedicines

WP11: To convert academic concepts into products for clinical evaluation

WP12: To provide training for the MEDITRANS consortium and for others who are interested

WP13: To effectively disseminate the project's results and to demonstrate its new technologies

WP14: To manage the project's resources and to monitor and report on progress