

Workshop : the Ethical Aspects of Nanomedicine
NH Carlton Amsterdam Hotel, Amsterdam Amsterdam, February 23rd, 2010



As for nanotechnology generally, the promises of nanomedicine are high. Non-invasive and hyper-effective treatments, early diagnosis, curing cancer and neurodegenerative diseases, aging without loss of capacity: it is often deemed that nanomedicine should lead us to a world alleviated from disease, where human life would last longer or even become, technically speaking, endless. Further, the boundary will probably be blurred between the use of nanomedicine as therapy and as an enhancing technique; some venture that nanomedicine paves the way to a dramatic re-engineering of the human nature.

But nanomedicine also elicits fears. It is not immune from risk, since the toxicity of many nanopharmaceuticals and nanomaterials is not yet well known, and we won't be able to fully assess their side-effects before years. Nanomedical treatments and diagnosis may also strengthen social inequality or cause new kinds of injustice, since nanomedicine will most likely first become available to privileged citizens in a small number of countries.

With the prospect of very early diagnosis, nanomedicine may also change the relationship between patient and therapist, shifting the responsibility for diagnosis and the decision to engage into treatment from the specialist to the patient himself. If cancer, for one, can be diagnosed on a very fine scale, how many cells should be diagnosed cancerous before the patient would be declared sick? Will illness remain an objective notion immune to panic and individual psychological bias?

Futuristic visions associated with nanomedicine (e.g., see illustration above*) are often disconnected from actual research and short-term industrial applications. Still, they inspire the public, provoke emotional response, and frame our thinking about technology. A deeper reflection is necessary to draw apart the unreasonable hype from the fiction which merits a critical but serious analysis.

Building on the ongoing work at the CEA-Larsim on the social and ethical dimensions of nanotechnology, (*Toolkit for Ethical Reflection and Communication on Nanotechnology* for EC project ObservatoryNano), this workshop will clarify some of the ethical issues raised by nanomedicine and provide tools for further analysis. We shall seek to engage the audience in a debate using problems and concepts from ethical theory as well as some instructive case studies.

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* Bryan Lester, *DNA repair machine*, 1989. A nanospacecraft travels the nucleus of a cell, oscillating between DNA strands.