

# Assembling the virtual human

June 29 2009

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It could mean the end of animal testing and eventually even clinical patient drug trials. The Virtual Physiological Human is a 21st century pan-European project that's gaining momentum and takes a major step forward this week at The University of Nottingham.

The University is one of 13 institutions involved in the VPH initiative which aims to create a methodological and technological framework to deliver patient-specific computer models for the personalised and predictive healthcare of the future. Once established it will allow a wide range of academic, clinical and industrial researchers to investigate the human body as a single complex system. They will be able to use the VPH network's expanding database of computer simulation data to develop better diagnosis and treatment methods.

Researchers at The University of Nottingham have been charged with developing a postgraduate VPH training programme which will be truly unique, cross-disciplinary and will involve periods of study for this kind of collaborative scientist at universities across Europe. A week-long study group to investigate one aspect of VPH science takes place on campus this week when mathematicians and medical researchers are working together to use mathematical modelling to suggest solutions to currently unsolved biomedical problems.

Study groups are workshops promoting the interaction between modellers and academic and industrial researchers working within life sciences. The latter two are invited to present technical problems for study in intensive workshops with leading mathematical modellers from

the academic community. This week the groups will try to model various problems relating to regenerative medicine, with a focus on epithelial (membrane) cells in the skin, bladder, lungs, gut, heart and breast. It's hoped the groups will come up with new theoretical models which could result in journal publications, and eventually funded research projects in their own right.

Dr Bindi Brook of the University's School of Mathematical Sciences said: "This study group is one of the prototypes for the sort of collaborative study which will be a key feature of our new VPH training programme. The course will allow postgraduates to train within the VPH network of European universities and, crucially, to access and contribute to a virtual VPH academy online."

The Virtual Physiological Human is an initiative that's being funded to the tune of 72 million Euros by the EU. It could revolutionise medical science in the 21st century. Central to its success will be to maximise the return from the vast quantities of patient-specific data that is emerging in the post-genomic era. Advances in computing and information technology have the potential to deliver tailored clinical treatments based on simulation of the genetic profile of the patient. And this is not just a long-term goal. It's expected that substantial advances in this field will be made over the next ten years in a range of diseases, from cancer to HIV/AIDS.

More information: Virtual Physiological Human Network of Excellence website: [www.vph-noe.eu/](http://www.vph-noe.eu/)

Source: University of Nottingham ([news](#) : [web](#))

Citation: Assembling the virtual human (2009, June 29) retrieved 23 April 2024 from

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