



NOVUSSANGUIS
RESPONSIBLE REGENERATIVE MEDICINE

Press Release

Novussanguis Launch **International research consortium on cord blood and adult stem cells for therapeutic aims**

Paris, May 12th 2008: Professor Colin McGuckin and the research group on cord blood at Newcastle University and the Fondation Jérôme Lejeune in Paris created *Novussanguis* to promote responsible research on cord blood and adult stem cells. Near 200 international participants are expected to attend the launch of this consortium on Wednesday 14th May at the Medical School of University Paris Descartes, in France.

The launch is placed under the Patronage of Mr Hans-Gert Pöttering, President of the European Parliament, and supported by the French Research Minister, Ms Valérie Pécresse

Cord blood and adult stem cells are very attractive for research in cell therapy and regenerative medicine because of their high differentiation and expansion potential.

Adult stem cells can be harvested from several human tissues such as brain, bone marrow, peripheral blood, liver, cornea, retina, and pancreas. It is also possible to find stem cells in umbilical cord blood. With over 130 million births per year worldwide, cord blood is a particularly important source of readily available stem cells in terms of access and supply.

Adult stem cells play a key role in research for treatment of several diseases. Today, over 80 diseases are treatable with cord blood stem cells, mostly linked to the blood system (e.g. leukaemia) or the immune system ('babies in a bubble'), but also diseases affecting the bone marrow, nervous system, heart or metabolism such as juvenile diabetes.

***Novussanguis* aims to meet the expectation of patients who could benefit from treatment with adult and cord blood stem cells.**

Novussanguis scope is Regenerative Medicine and Cell Therapy based specifically on adult and cord blood stem cells. The *Novussanguis* consortium is a platform of research starting with around fifteen laboratories focusing on research, innovation and the formation of the future generations of researchers.

The first projects to be financed by Novussanguis will initially carry out research including:

- ⌘ nervous tissues damaged by stroke¹
- ⌘ pancreatic tissues that can produce insulin in vitro to further research in diabetes²
- ⌘ cardiac tissues damaged by myocardial infarct³
- ⌘ epithelial tissues to improve treatment of wound healing and cornea⁴
- ⌘ nervous tissues, bone, cartilage, tendons and blood vessels for orthopedic applications⁵
- ⌘ epigenetic profiling of cord blood stem cells to improve tissue engineering⁶
- ⌘ expansion and clinical cryopreservation of cord blood stem cells⁷

***Novussanguis* aims to be a pragmatic consortium understanding the realities of modern research, including the necessity to collaborate with biotechnology companies, in order to have an impact on tomorrow's patients health.**

¹ Collaborative project between, Newcastle University, UK (Prof Colin McGuckin), Fondazione Ospedale Maggiore, Italy (Prof Lorenza Lazzari), Polish Academy of Sciences Medical Research Centre, Poland (Prof Krystina Domanska-Janik), The University of Dublin, Trinity College, Ireland (Prof Marina Lynch), ENKAM Pharmaceuticals, Denmark (Dr Elisabetta Vaudano), Ludwig Boltzmann Institute for Cancer Research, Austria (Dr Richard Morrige), Protista, Sweden (Dr Maria Dainiak)

² Collaborative project between, Newcastle University, UK (Prof Colin McGuckin), Seoul National University, Korea (Prof Jyung-Sun Kang), University of Texas Medical Branch, USA (Prof Larry Denner)

³ Project co-ordinated by Deutsches Herzzentrum Berlin, Germany (Prof Christof Stamm); Project co-ordinated by Institut de Recherche en Hématologie et Transplantation de Mulhouse, France (Prof Philippe Henon)

⁴ Project co-ordinated by the University of Arizona, USA (Prof David Harris)

⁵ Project co-ordinated by the Ludwig Boltzmann Institute for Experimental and Clinical Traumatology, Austria (Prof Martijn van Griensven)

⁶ Project co-ordinated by Hopital Saint Louis, INSERM and Paris 7 University, France (Dr Michele Goodhardt)

⁷ Project co-ordinated by Etablissement Français du Sang Aquitaine Limousin, France (Dr Zoran Ivanovic)



Professor Colin McGuckin, Chair in regenerative medicine, Newcastle University.

The English team is internationally recognized as a leader in this field, with numerous publications on cord blood and adult stem cells.

In 2005, Prof McGuckin and Dr Nico Forraz demonstrated for the first time in the world, the existence of pluripotent stem cells in cord blood, called *Cord blood-derived Embryonic-like stem cells* (CBE's) since they bear characteristics similar to embryonic stem cells. These cells have the ability to form different tissues: blood, neural, hepatic, for example⁸.

In 2005 and 2006, Professor McGuckin published other important results: the world first report on creating hepatic liver tissues in three dimensions from cord blood stem cells. Although these cells in the body do develop in three dimensions, it is rather difficult to reproduce this process *in vitro*. His team worked with National Aeronautics and Space Administration (NASA) and associates who had developed 'Bioreactor' technology to achieve this process. The resulting tissue models could even yield clinical applications. In terms of pharmaceutical research, these models could contribute to drug development by better predicting adverse side effects⁹.

In 2007, Professor McGuckin's team published an article describing how they managed to create human tissues secreting insulin, an important step for Diabetes research¹⁰.



The Foundation Jérôme Lejeune in Paris, presided by Jean-Marie Le Méné.

Recognized of 'public utility' by the French government in 1996, the Foundation Jérôme Lejeune finances every year over 100 scientific and medical research projects around the World. The Foundation is the first financier for Down's syndrome (trisomy 21) in France.

Willing to do everything it can to find one day a treatment for its patients who are received there for consultations, *Foundation Jérôme Lejeune* is interested in developing innovating therapies. Having financed for a number of years adult stem cell research, the Foundation wished to explore further this route.

In September 2006, *Foundation Jérôme Lejeune* co-organised an international congress on adult stem cells in Rome gathering over 300 researchers from all over the world. Amongst these international researchers, Prof S. Yamanaka presented his recent discovery on adult cell reprogramming yielding induced pluripotent stem cells (IPS cells). At this congress the *Foundation Jérôme Lejeune* also met with Prof Colin McGuckin and his team.



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⁸ Cell Proliferation 2005, volume 38 issue 4, pages 245-255

⁹ Cell proliferation 2005, volume 38 issue 4, pages 245-255 and Tissue Engineering 2006, 12 (4) 1042-1043

¹⁰ Cell Proliferation 2007, volume 40 issue 3, pages 367- 380