The Marrow Donor Program Symposium
Current status and future of regenerative medicine
Friday November 25, 2016 – 14:00
Conference room “Plaza”, Belgian Red Cross-Flanders in 2800 Mechelen, Motstraat 42

President of the Red Cross,

Professors, Doctors,

Dear ladies and gentlemen,

The magic of the cells cannot be underestimated. On 5 July 1996 Dolly was presented to the world. It was the first mammal cloned from a somatic cell. Dolly seemed to be the signal that from now on, everything is possible. Patients with a chronic disease believe that from now on their sick organs could be reproduced and permanent healing would just be around the corner.

Rather than giving us straight forward therapeutic solutions, the practice of cloning brought us to a set of ethical questions. How far can we take stem cell technology? What type of cell lines are suitable for research? In 2001 this situation let to a serious controversy regarding the fact if embryonic stem cells can or can’t be used for scientific purposes and wetter that type of research can be sponsored by the US federal Government. Nancy Reagan advocated strongly in favour of the development of stem cell therapies. She stated: “Embryonic stem cell research has the potential to alleviate so much suffering. Surely, by working together we can harness its life-giving potential.” Nevertheless, George Bush enhanced his embryonic stem cell research ban. On the other hand, he understood, how important access to stem cells for therapeutic purposes really is. Under his administration he increased the

budget up to $265 million for adult stem cell therapy, umbilical cord blood and bone marrow treatment, and authorized $79 million for the collection of cord blood stem cells.

Ladies and gentlemen, dear colleagues,

In Europe and more specifically in Belgium, both ethical and scientific issue are high on the political agenda as well. In 2014 dr. Ph De Backer, Member of EU-Parliament questioned the European Commission's attention for access of European stem cells to the US market. On the national level senator jean-Jacques De Gucht launched a debate if homosexuals should be eligible for stem cell donation or not. In his question member of parliament Wouter Devriendt advocated the financing of the stem cell donor registry.

Apart from the ethical aspects and equally important question indeed is: "Where are we with our stem cell infrastructure in Belgium today?" In such an infrastructure two main elements are the drivers: a registry of potential donors as well as the stem cell and cord blood banks.

Letts have a look into the registry. The Marrow Donor Program Belgium-registry receives an annual public funding of 480.000 euro, enabling it to keep the registry up to date by recruiting new donors every year. In the past 5 years, the number of donors grew from 50000 in 2010 up to approximately in 77000 potential donors in 2015. The maintained renewal of the donors with a more profound DNA typing, is important. From recent statistics produced by the MDPB we learn that clinicians prefer recent registered donors.

Secondly, Belgium has a rather large network of 13 stem cell and 5 cord blood banks. Each of these banks receive an annual government funding: about 6.6 million euros via the health insurance nomenclature and a global lump sum of 3,4 million euro via the financing of the hospitals. The main activity of these banks is to provide stem cells units whenever a patient needs transplantation.

Ladies and gentlemen,

We have a strong register as well as stem cell banks which are active in a global, but highly competitive environment. Many factors determine their position within the global network of stem cell supply within the world. Many factors depend on what scientist and clinicians are looking for: What HLA do they need? Are we talking about embryonic, cord blood or hematopoietic stem cells? What kind of stem cell line do we need to test our latest scientific findings? Etc.

A rather small registry, such as the Belgian MDPB-r, does create added value to donor availability. Two major strategies can lead to such a position. First it is important to take action to collaborate with other smaller registries with in the international network of the Bone Marrow Donor Worldwide, the BMDW, that assures access to 29,5 million possible donors. In most cases, donors are recruited from German or the US as they tend to be the best know registries. Nevertheless, small registries might be cheaper to collaborate with, might have a faster response rate or might have more up to date information. This assets should be displayed.

Secondly, a smaller registry like the MDPB-r can also re-enforce its position by a well-developed donor recruiting strategy. One can presume

that the HLA-type of a population can be represented in a standard normal distribution or Gaussian curve. In order to increase the unique position of a registry it might be interesting to recruit for this rare HLA-profiles at the end of the curves. This can for example be obtained by recruiting in ethnic minority groups within the national population. This strategy also can increase the changes for both autochthones and allochthones to find a suitable donor in case they need a stem cell transplantation. Rather than massively recruiting, targeted recruitment is preferable. A fact of which the public opinion should be made aware as well. Thanks to the work of the Red Cross and the MDPB-r we have a modern stem cell donor registry available in Belgium that is attractive to both international and national clinicians active in the field of stem cell transplantation.

Ladies and gentlemen

A strong registry anchored in a worldwide network, assures access to stem cell transplantation therapy when needed. An equally important actor in this story are the stem cell and cord blood banks. One of the major questions is: how to stay profitable Magalon et al. discussed this issue in the article '*Banking or bankrupting*: *strategies for sustaining the economic future of public cord blood banks*' that appeared in 2015. The overall conclusion of this article was that: "In a context of limited public spending on health systems, banking decisions based on stronger selection criteria are essential if public banks are to remain financially sustainable and maximize their long-term therapeutic value for patients". However, one can indeed try to develop such policy, but will that be enough in a context where demand for cord blood stem cell samples seem to be in a downward spiral?

Beside the mere use of strict selections criteria, banks should collaborate in an intensive manner in order to diversify their number of activities and to create economic of scale. Within this network of close collaboration, stem cell banks should agree on who will be specialising in which activity. This is one of the objectives we are also aiming for in the reform of the hospital landscape in Belgium.

Ladies and gentlemen

In recent years, regenerative medicine is emerging. This discipline searches for therapeutic solutions for replacing, engineering or regenerating human cells, tissues or organs to restore or establish normal function. Scientists and clinicians active in the stem cell banks in Belgium, can play an important role in the development of such therapies. Banks can either be suppliers of cell lines to develop the therapy or they can play a pivoting role in accelerating and encouraging clinical studies to improve regenerative therapies. I'm convinced if the stem cell and cord blood banks in Belgium collaborate closely and intensively together, they can share their experiences and knowledge leading to therapies that benefit the patient. Such an approach helps to encourage the sustainability of the Belgian public stem cell banks.

This afternoon we will hear from many Belgian key-opinion leaders with in the field of this discipline where we are today. I'm happy to see that Belgium is at the forefront of this new stem cell disciplines. I wish to all of you a very interesting symposium.

Thank you for your attention.