

Cord Blood and Stem Cells

March 5, 2010 by biotechconnection.com

There has been a lot of talk in the news recently about the positive benefits of retaining cord blood, and the need to invest time and money in stem cell research.

Cord Blood is the blood that remains in the umbilical cord and placenta following birth. Generally, cord blood is routinely discarded with the placenta and umbilical cord at the time of birth, but now research has shown that the blood in the cord is a rich source of stem cells. This is very important as stem cells are the building blocks of the blood and the immune system.

It has become apparent that saving the cord blood in blood banks, could save the life of the donor, or members of their family from future diseases. This is possible because stem cells have the ability to differentiate into other types of cells in the body, and thus give rise to all the tissues, organs and systems in the body. By saving these stem cells, treatments can be developed for diseases such as Parkinson's, Alzheimers and Diabetes – to name but a few.

The stems cells in a child's cord blood are genetically unique to the baby and its biological family. As a valuable biological resource, researchers can use these stems cells to investigate the potential for future applications, should the child or family develop health problems later in life. This has brought about the current trend for many parents to invest in their own 'health insurance' by storing the stem cells retained at birth in cord blood banks.

The process of storing the cord blood, involves drawing the blood from the umbilical cord, using either the syringe or bag collection method, after the umbilical cord has been clamped and cut. The blood is then tested to determine whether it meets eligibility standards. The red blood cells or plasma are removed as they will not be needed in transplantation. The blood is then stored in the cord blood unit – either in a vinyl or plastic bag in which it is frozen in liquid nitrogen.

There are two types of cord blood banks...

First, there are the family banks, which store the umbilical cord for one's own family use.

Second, there are the public donor banks, which store the blood for unrelated or non-family use – this can be used for research and development of cures for many types of health problems.

Every parent has the option of saving their baby's cord blood for their family use, however, only a small number of people become eligible to donate their baby's cord blood stem cells.

There are three sources of stem cells in the body.

1 – Cells from bone marrow.

2 – Cells from peripheral blood (this is the blood that circulates through the body).

3 – Cells from umbilical cord blood.

The umbilical blood is significant for research because it differs from the other types of stem cells. Due to the structure of the stem cells in the cord blood, they are less likely to be rejected by the body when used in a

transplant.

This allows for the use of the blood in patients other than the original donor and results in a higher rate of success.

Hopefully, some of the points above help to show the benefits and importance of retaining cord blood, and the need to invest time and money in stem cell research.